THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—32ND YEAR. SYDNEY, SATURDAY, FEBRUARY 17, 1945. No. 7.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
Hormonal Treatment of Carcinoma of the Prostate Gland, by Colin Edwards 165
Carcinoma of the Prostate, by Harold J. Ham .. 168
Diffuse Otitis Externa: An Investigation and Discussion, by B. J. Basil-Jones 169
The "Radical" Treatment of Otitis Externa in the Field, by Charles L. Coghlan 172

REVIEWS—
Monographs on Neurology and Medical Psychology 178
Pye's Surgical Handicraft 178

LEADING ARTICLES—
Housewives' Dermatitis 179
The Report of the New South Wales Committee on Maternal Mortality 180

CURRENT COMMENT—
Psychological Incontinence in Children 180
Hæmoptysis 181

ABSTRACTS FROM MEDICAL LITERATURE—
Ophthalmology 182
Oto-Rhino-Laryngology 183

BRITISH MEDICAL ASSOCIATION NEWS—
Scientific 184

MEDICAL SOCIETIES— Page.
Victorian Medical Benevolent Association 186

NATIONAL EMERGENCY MEASURES—
The Rationing of Eggs 186

CORRESPONDENCE—
The Queensland University Medical Course 187
The Repatriation Department and Ex-Service Personnel 187

NAVAL, MILITARY AND AIR FORCE—
Appointments 187

POST-GRADUATE WORK—
Diploma Courses in Sydney 188

OBITUARY—
Oswald Robert Trumpy 188

NOMINATIONS AND ELECTIONS 188
MEDICAL APPOINTMENTS 188
BOOKS RECEIVED 188
DIARY FOR THE MONTH 188
MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 188
EDITORIAL NOTICES 188

HORMONAL TREATMENT OF CARCINOMA OF THE PROSTATE GLAND.[1]

By COLIN EDWARDS,
Sydney.

CARCINOMA of the prostate gland is one of the most lethal of malignant diseases. The incidence is relatively high, as cancer occurs in one-fifth of the men with symptoms of bladder-neck obstruction.[33] The average duration of life from the onset of symptoms is less than three years.[20]

Little more than a decade ago urologists were elated when it became possible to relieve urinary retention by transurethral methods. But in spite of this, the management of these patients remained one of the gloomiest features of urological practice, as the inevitable end was frequently preceded by protracted and intolerable pain. We are now in the happier position of being able often to prevent pain and to prolong life, although the complete extirpation of the disease still eludes us.

Problems of Management.

When the diagnosis of carcinoma of the prostate gland is established, we are confronted by three problems: (i) the relief of urinary retention, (ii) the extirpation or control of the tumour and metastases, (iii) the relief of pain.

As prostatic carcinoma is a subject more suited to a symposium than to an address, it is proposed to direct this discussion to that part of the second problem—control of the tumour—in which recent scientific progress has indicated new lines of thought leading to methods of treatment that are not yet proven.

Until recently the only prospect of controlling the tumour was by using radium or X rays or by the radical perineal operation of prostato-vesiculectomy. Three other measures are now available which are more widely applicable and less harmful to the patient, and which appear to have a somewhat better chance of success. All come under the heading of androgen control therapy.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on November 30, 1944.

Androgen Control Therapy.

The theory of androgen control therapy rests on the observations that the development and growth of the human prostate gland is dependent on the presence of androgenic hormones and that withdrawal of these hormones causes atrophy of the adult gland.[13][16] It should be understood that the common bladder-neck obstruction—"prostatic" hypertrophy or adenoma—arises from the periurethral glands but not from the true prostate. Therefore it is not dependent for growth on the circulation of androgens. On the other hand, carcinoma almost always has its origin in the tissues of the anatomical prostate. The tumour and its metastases conform to the cellular type of the parent tissue and have similar biochemical characteristics. As the true prostate gland atrophies when androgens are withdrawn, so the tumour and metastases are similarly affected.[27][28] There is, however, no valid evidence that the elimination of androgens will materially influence simple hypertrophy of the periurethral glands.

In practice it is found that the theory proves correct in a large proportion of cases, and reasons have been advanced to account for the apparent failures.

Orchidectomy.

The obvious method of limiting autogenous androgen production is by castration. Intermittent and unsuccessful attempts have been made since the last century to prevent senile prostatic enlargement by this means; but the recent work of Huggins[17] has introduced a scientific basis for it. The subcapsular technique, in which the *tunica albuginea* and the epididymis are left in the scrotum, is to be preferred, as it causes the minimum of inconvenience and results in very slight alteration in the appearance of the scrotum.

Unfortunately for our purpose, the removal of the testicles does not terminate production of the hormone in the body. It is possible that orchidectomy stimulates other sources of androgens to unwonted activity. Should

this be proved, it may be found later that the administration of œstrogen is preferable to castration.

X-Ray Therapy.

X-ray therapy can produce testicular atrophy, but some doubt has been cast upon its efficacy for destroying the interstitial cells of the testis. At present insufficient collective experience has been published to establish this method.[7]

Œstrogen Administration.

An alternative method of androgen control is by the administration of œstrogen. Stilbœstrol is the particular type usually selected, because it is cheaply produced and may be administered orally. It was synthesized by Professor Dodds and his team workers in 1938[11] and is capable of inhibiting the gonadotropic output of the pituitary gland sufficiently to stop testicular function. It is probable that its effect is not permanent and that regeneration takes place when treatment is discontinued.

The dosage and method of administration of stilbœstrol are moot questions. It has been stated that oral administration is ineffective and that intramuscular injections are necessary.[10] So far this has not been confirmed by experience; no patient in this series who failed to respond to stilbœstrol tablets has been benefited by injections. In view of its convenience, the oral route has been used more extensively.

In the early phases of this biochemical therapy one to three milligrammes per day was the dose of stilbœstrol commonly recommended. As the risk is minimal, it is reasonable to attempt to gain control of the tumour early by giving large doses at once. After the first week the dosage is subject to review, regard being paid to the patient's reactions and to the serum acid phosphatase level. Most of the 80 patients who constitute the material for this study had an initial dose of 15 milligrammes per day.

Disadvantages of Androgen Control.

The greatest disadvantage of the androgenic method of therapy is the loss of libido and potency. In the case of stilbœstrol both may be regained if the treatment is stopped, but after orchidectomy the result is permanent. Toxic manifestations are not of much importance. Gastric intolerance sometimes occurs with the use of tablets, but does not persist if injections are substituted. Swelling and pain in the breasts and sometimes œdema of the ankles call for diminution of the dose or temporary cessation. No serious or permanent toxic results have been recorded from prolonged or excessive dosage.

Acid Phosphatase Estimations.

Serum acid prosphatase estimations are of the greatest value in prognosis and treatment, but as a diagnostic measure only positive results are useful. The first observations on this enzyme were made in 1934 by Davies, Bamaan and Riedel. It has since been shown that the concentration of acid phosphatase in the adult prostate is many hundred times that found in any other tissue,[9] and that prostatic carcinoma contains large amounts of the enzyme.[12] The escape of the phosphatase into the blood stream provides the basis for this test for the volume and activity of the tumour.

Most workers on this subject are agreed that there is no absolutely critical level, but that in practically all cases of prostatic carcinoma and metastases a high reading is obtained, while in nearly all controls results within the normal range are produced. Unfortunately the laboratories in Sydney do not all use the same technique, and consequently the average normal figure varies. At the Kolling Research Institute of the Royal North Shore Hospital of Sydney, where, owing to the enthusiastic cooperation of Dr. Lemberg and the staff of the Biochemical Department, this test has been available for nearly two years, the technique[13] used gives an average normal of 0 to 1·1 units per 100 cubic centimetres. The highest result obtained to date is 52·5 units.

Interpretation of Acid Phosphatase Estimation.

Certain precautions are required in interpretation of the results. There is a relative increase of acid phosphatase in the blood in some other diseases. These include advanced Paget's disease of bone, breast carcinoma with bony metastases, hyperparathyreoidism with pronounced skeletal changes and osteopetrosis.[9] The serum must not be hæmolysed, as erythrocytes contain a relatively large amount of phosphatase.[12] Inaccurately low values may be obtained for several reasons: (*a*) invasion of the blood or lymph channels may be insufficient for the escape of much prostatic secretion, as in early cases; (*b*) the tumour may produce insufficient enzyme, as in pronounced anaplasia or low endogenous androgen levels; (*c*) the serum may have been allowed to stand too long; the acid phosphatase level in shed blood gradually falls, and protein must be removed from the serum if it is to be kept for any length of time; (*d*) the test requires more than average biochemical ability, and technical faults are another source of error.

With these precautions in mind, it may be said that a figure slightly above normal is strong presumptive evidence in a clinically doubtful case of carcinoma. If the result is much above normal the issue is almost beyond doubt, but a normal or borderline result may be obtained if the tumour and metastases have not yet invaded the vascular system.

To facilitate the interpretation of borderline values, Sullivan has described a provocative test,[11] which depends on the increase in acid phosphatase produced by the administration of testosterone over a short period. This is only in the experimental stage, and its value has not yet been established.

It may be well to interpolate here a warning in regard to the indiscriminate use of testosterone. This substance is frequently advocated as a tonic, especially for elderly men, and its sale is unrestricted. If a prostatic carcinoma is already present in an occult form, the use of testosterone will probably result in stimulation of the tumour.[10]

In prognosis and treatment, much help is to be derived from serial estimations of the acid phosphatase level. The estimation is first made before any hormonal treatment is commenced. If the result is low in an undoubted carcinoma, either the tumour is of the anaplastic highly malignant type or it has not extensively invaded the vascular system. In either case there should be no material rise after treatment is instituted, as an anaplastic, highly malignant tumour does not produce much enzyme, and extension into the vascular system should be prevented.

If a high reading is obtained before treatment, a favourable reaction to hormonal therapy is indicated by steadily falling values until the normal is reached. Rising figures are unfavourable; they may give an early indication of inadequate dosage of stilbœstrol or of the presence of an unsusceptible tumour.

Treatment.

Each patient requires individual consideration, but this plan will serve as a guide in treatment.

1. Temporarily relieve retention of urine, usually by catheter.
2. Estimate the serum acid phosphatase level before any hormonal therapy is commenced.
3. Administer stilbœstrol, 15 milligrammes per day, for the first week.
4. Permanently relieve the retention of urine by transurethral resection. For some patients this may be unnecessary, and others may require cystotomy.
5. Perform subcapsular orchidectomy.
6. Reduce the dosage of stilbœstrol to, say, five milligrammes per day.
7. Repeat the serum acid phosphatase estimations each month in the early stages.
8. Regulate the stilbœstrol administration accordingly. Do not be guided only by symptoms.
9. When the serum acid phosphatase level has fallen to normal, reduce the dosage of stilbœstrol to about three milligrammes per week; check the level every three months.
10. Remember that the disease is not cured; keep the patient under observation.

There is probably scope for X-ray therapy, radon implantation or radical operation among the patients who

give a poor response to androgen control. All these methods can succeed only if the tumour has not metastasized, but radiotherapy is used extensively for relief of pain.

A suggestion has been put forward that, when symptoms are not urgent, hormonal treatment should be deferred, on the ground that if only a limited period of relief is available, the treatment should be given when pain is severe. This presupposes that there will be no cures, even when an early lesion is treated. In the event of these two premises being proved correct, the optimum time for treatment will probably be when the acid phosphatase level commences to rise, indicating extension of the tumour, but before gross bony changes—such as collapse of a vertebral body—have occurred.

Results of Androgen Control Therapy.

No claim is made that the disease is cured by androgen therapy; in fact, the few post-mortem studies available on patients who have died from other causes suggest that the tumour is still present and would become active in propitious circumstances.

The condition of approximately 10% of patients with established prostatic carcinoma is uninfluenced by this form of treatment; but in the majority of cases, including those in which pain due to bony metastases is present, the immediate results are encouraging. Pain is relieved promptly—sometimes within a few hours after orchidectomy. A sense of well-being is evident in the patient's demeanour, the appetite improves and weight increases. It is not uncommon for patients who have been bedridden to walk within ten days. Locally, the tumour becomes softened and diminishes in size in a few weeks. Simultaneously patients who have not required surgical relief for obstruction may observe an increase in the force and diameter of the urinary stream. Histological changes in sections examined after stilbœstrol treatment include nuclear degeneration and vacuolization of the cytoplasm.[27]

Serial acid phosphatase estimations reveal a rapid fall where the initial reading is high, followed by a steady decline to the normal range. Any intermission in this decline indicates either inadequate treatment or an unresponsive tumour and is a sign of ill omen.

The most amazing phenomenon is seen in a few cases in which radiologically demonstrable metastases are present. After some months the affected areas gradually disappear, providing striking evidence of retrogression of the secondary growths.

Unfortunately these results are not always permanent. In round figures 12% of the lesions have relapsed and could not be brought under control again. As the period of observation is short, it is to be expected that more will relapse in the course of time. In this connexion it is recalled that in 1905 Hugh Lett, of London, reviewed 99 cases of inoperable breast carcinoma in which oophorectomy had been performed eight years previously. In only one case was the lesion permanently arrested, although immediate results had been spectacular.

Causes of Failure.

It is most important to know why some lesions are susceptible to androgen control while others are resistant. The following possible causes of failure are suggested, but so far the proofs are wanting: (i) anaplastic tumours, the cells of which do not depend on androgens for survival; (ii) carcinomatous degeneration occurring in a periurethral adenoma; (iii) stimulation of androgen formation in sites other than the testes, which may be caused by castration; (iv) inadequate dosage of œstrogen; (v) cellular adaptation to a prolonged period of growth repression; this may be responsible for some relapses.

Conclusion.

There is no doubt that biochemical control is so valuable that it should be given an immediate and thorough trial whenever prostatic carcinoma is diagnosed. The spectacular relief of pain is sufficiently impressive to compel attention, even if all patients subsequently relapse. It has the additional advantages that, at worst, it is relatively innocuous and it does not interfere with any other form of treatment that is required.

Possibly signs of endocrine imbalance may become evident after a longer period; but as most patients are well on in years an interval of relief is of inestimable value to them. Nevertheless, at the present stage, it is well to avoid excessive enthusiasm in prognosis.

References.

(1) F. Hinman and D. Smith: "Carcinoma of the Prostate", *California and Western Medicine*, Volume LI, October, 1939, page 235.

(2) J. H. Tillisch and H. C. Habein: "Sedimentation Rate in Benign Hypertrophy, Carcinoma of the Prostate Gland and Carcinoma with Metastases", *The Journal of Urology*, Volume XLIX, 1943, page 857.

(3) A. D. Munger: "Treatment of Carcinoma of the Prostate with Irradiation of the Testicles", *The Journal of Urology*, Volume XLVI, 1941, page 1007.

(4) R. Chute, A. T. Willets and J. P. Gens: "Experiences in Treatment of Carcinoma of the Prostate with Stilbœstrol and with Castration by the Technique of Subcapsular Orchidectomy", *The Journal of Urology*, Volume XLVIII, 1942, page 682.

(5) E. P. Alyea and A. F. Henderson: "Immediate Results of Castration for Carcinoma of the Prostate", *The Journal of the American Medical Association*, Volume CCXX, 1942, page 1099.

(6) E. P. Alyea and A. F. Henderson: "Immediate Results of Castration for Carcinoma of the Prostate", *The Journal of Urology*, Volume XLVIII, 1942, page 673.

(7) R. M. Nesbit and R. H. Cummings: "Prostatic Carcinoma Treated by Orchidectomy", *The Journal of the American Medical Association*, Volume CXX, 1942, page 1109.

(8) T. J. D. Lane: "Castration in Prostatic Carcinoma", *The Lancet*, Volume I, 1943, page 166.

(9) A. B. Gutman: "Serum Acid Phosphatase in Patients with Carcinoma of the Prostate: Present Status", *The Journal of the American Medical Association*, Volume CXX, 1942, page 1112.

(10) J. N. Robinson, E. B. Gutman and A. B. Gutman: "Clinical Significance of Increased Serum Acid Phosphatase in Patients with Bone Metastases Secondary to Prostatic Carcinoma", *The Journal of Urology*, Volume XLII, 1939, page 602.

(11) T. J. Sullivan, E. B. Gutman and A. B. Gutman: "Theory and Application of Serum Acid Phosphatase Determination in Metastasizing Prostatic Carcinoma: Early Results of Castration", *The Journal of Urology*, Volume XLVIII, 1942, page 426.

(12) E. B. Gutman and A. B. Gutman: "Erythrocyte Phosphatase Activity in Hæmolysed Sera and Estimation of Serum Acid Phosphatases", *Proceedings of the Society of Experimental Biology and Medicine*, Volume XLVII, 1941, page 573.

(13) C. Huggins, R. E. Stevens, junior, and C. V. Hodges: "Effects of Castration on Advanced Carcinoma of the Prostate Gland", *Archives of Surgery*, Volume XLIII, 1941, page 209.

(14) C. Huggins, W. W. Scott and C. V. Hodges: "Effect of Fever, of Desoxycorticosterone and of Œstrogen on Patients with Metastatic Carcinoma of the Prostate Gland", *The Journal of Urology*, Volume XLVI, 1941, page 997.

TABLE I.

Early Results of Androgen Control Therapy.

Source.	Number of Cases.	Method of Treatment.	Period of Observation.	Number of Deaths from Groups A and B.	Group A. Condition Uninfluenced.	Group B. Initial Success; Relapse.	Group C. Condition Much Improved, to Symptomless.
Six American surgeons	212	Stilbœstrol and/or castration.	Up to six months.	8 (3·8%)	16 (7·5%)	188 (88·6%)	
C. Edwards	80	Stilbœstrol and/or castration.	Three to 27 months.	5 (6·25%)	8 (10·0%)	9 (11·25%)	58 (72·5%)
C. Huggins .. .	45	Castration only.	Up to two years.	8 (17·7%)	5 (11·1%)	9 (20·0%)	31 (68·8%)

(15) C. Huggins: "Effect of Orchidectomy and Irradiation on Cancer of the Prostate Gland", *Annals of Surgery*, Volume CXV, 1942, page 1192.
(16) C. Huggins and C. V. Hodges: "Effect of Castration, of Œstrogen and of Androgen Injections on Serum Phosphatases in Metastatic Carcinoma of the Prostate", *Cancer Research*, Volume I, 1941, page 293; quoted by W. P. Herbst, *loco citato*, and by A. B. Gutman, *loco citato*.
(17) C. Huggins and P. J. Clark: "Quantitative Studies in Prostatic Secretion", *The Journal of Experimental Medicine*, Volume LXXII, 1940, page 747.
(18) H. C. Bumpus, junior: "Radium in Cancer of the Prostate", *The Journal of the American Medical Association*, Volume LXXVIII, 1922, page 1374.
(19) H. C. Bumpus, junior: "Cancer of the Prostate", *California and Western Medicine*, Volume LV, 1941, page 239.
(20) H. C. Bumpus, junior: "Carcinoma of the Prostate: Clinical Study of One Thousand Cases", *Surgery, Gynecology and Obstetrics*, Volume XLIII, 1926, page 150.
(21) W. P. Herbst: "Effect of Estradiol Diproprionate and Diethylstilbœstrol on Malignant Prostatic Tissue", *Transactions of the American Association of Genito-Urinary Surgeons*, Volume XXXIV, 1941, page 195.
(22) W. P. Herbst: "Biochemical Therapeusis in Carcinoma of the Prostate", *The Journal of the American Medical Association*, Volume CXX, 1942, page 1116.
(23) G. Y. Shinowara, L. M. Jones and H. L. Rheinhardt: "Estimation of Serum Inorganic Phosphate and Acid and Alkaline Phosphatase Activity", *The Journal of Biological Chemistry*, Volume CXLII, 1942, page 921.
(24) J. K. de Vries: "Diagnosis of Carcinoma of the Prostate", *The Journal of Urology*, Volume XLVI, 1941, page 981.
(25) P. J. Kahle and H. T. Beacham: "Carcinoma of the Prostate Gland: Analysis of 88 Fatal Cases", *Urologic and Cutaneous Review*, Volume XLVIII, 1944, page 1.
(26) P. J. Kahle: "Carcinoma of the Prostate Gland: Pathological Study", *The Journal of Urology*, Volume XLI, 1939, page 557.
(27) P. J. Kahle, H. A. Ogden and P. L. Getzoff: "Treatment of Carcinoma of the Prostate Gland with Diethylstilbœstrol and Diethylstilbœstrol Diproprionate: Analysis of 13 Cases", *Urologic and Cutaneous Review*, Volume XLVI, 1942, page 619.
(28) P. J. Kahle, H. A. Ogden and P. L. Getzoff: "Effect of Diethylstilbœstrol and Diethylstilbœstrol Diproprionate on Carcinoma of the Prostate Gland: Clinical Observations", *The Journal of Urology*, Volume XLVIII, 1942, page 619.
(29) P. J. Kahle, J. R. Schenken and E. L. Burns: "Clinical and Pathologic Effects of Diethylstilbœstrol and Diethylstilbœstrol Diproprionate on Carcinoma of the Prostate Gland: Continuing Study", *The Journal of Urology*, Volume L, 1943, page 711.
(30) W. Kutscher and H. Wolbergs: *Zeitschrift für physiologische Chemie*, Volume CCXXXVI, 1935, page 237; quoted by C. Huggins and C. V. Hodges, *loco citato*.
(31) E. C. Dodds: "Treatment of Carcinoma of the Prostate", *Proceedings of the Royal Society of Medicine*, Volume XXXVII, 1944, papge 353.
(32) C. C. Herger and H. R. Sauer: "Relationship of Serum Acid Phosphatase Determination to the Presence of Bone Metastases from Carcinoma of the Prostate", *The Journal of Urology*, Volume XLVI, 1941, page 283.
(33) R. B. Henline: "Surgical Treatment of Prostatic Disease", *The Journal of the American Medical Association*, Volume CXVII, 1941, page 2030.
(34) C. P. Rhoads: "Newer Aspects of Cancer Research", *American Journal of Roentgenology and Radium Therapy*, Volume XLIX, 1943, page 289.
(35) A. Haddon, J. M. Watkinson, E. Patterson and P. C. Koller: "Influence of Synthetic Œstrogens upon Advanced Malignant Disease", *British Medical Journal*, Volume II, 1944, page 393.

CARCINOMA OF THE PROSTATE.[1]

By HAROLD J. HAM,
Sydney.

MY part in the proceedings tonight is to discuss the role of radiotherapy in the management of carcinoma of the prostate. It must be admitted at the outset that results from radiotherapy have been discouraging, particularly when one is considering the question of cure and the length of survival after treatment; but due consideration has also to be given to the palliative relief which can be obtained with radiotherapy.

There is reason for a feeling of some optimism with regard to the new hormonal therapy which has been discussed by my colleague, and I know of some of the spectacular immediate results which have been obtained in advanced cases. However, surgery still has its place, particularly in the relief of urinary retention; and I would make a plea that radiotherapy be not forgotten as a valuable adjunct in treatment, both in the control of the primary growth, and in the relief of pain, especially, in the case of those patients who do not respond to the administration of stilbœstrol.

The following are the radiotherapeutic methods in use in carcinoma of the prostate:

A. Deep X-Ray Therapy.

1. Post-operative. After suprapubic cystostomy, prostatectomy or endoscopic resection.
2. For the treatment of the primary growth only. Newer methods: (*a*) small field technique; (*b*) supervoltage up to 1,000,000 volts.
3. Treatment of metastases. Essentially palliative.
4. Irradiation of testes. Munger's work.

B. Radium or Radon Therapy.

1. Implantation of radium needles or radon seeds from the perineum.
2. Implantation of radon seeds in association with surgery, either perineal or suprapubic exposure being used.

In order to give you an idea of the results which could be expected from radiotherapy as it has been used in the past, I have prepared a table reviewing the histories of patients suffering from carcinoma of the prostate who were treated in the deep X-ray Department, Sydney Hospital, during the years 1933 to 1941 inclusive.

TABLE I.

Carcinoma of the Prostate: Patients Treated at the Deep X-Ray Therapy Department, Sydney Hospital, from 1933 to 1941.

Method of Treatment.	Number of Patients.	Alive Now.	Dead.	
			Average Survival Period (Months.)	Longest Survival Period (Months.)
Suprapubic cystostomy and deep X rays	8	—	16·0	35·0
Endoscopic resection and deep X rays	9	—	22·6	44·0
Prostatectomy and deep X rays	6	1 (9 years)	13·0	18·0
Prostatectomy, deep X rays and radium	1	—	—	5·0
Deep X rays to primary growth	19	—	11·2	36·0
Deep X rays to metastases..	5	—	12·4	25·0
Interstitial implantation of radium	1	—	—	5·0

There were 49 patients in all, and they have been grouped according to the method of treatment. The average age was sixty-six years; the youngest patient was aged thirty-eight years. Thirteen of the patients had bone metastases when first examined, and 37 of them had advanced lesions. One patient is alive and well today, nine years after treatment; but his was a case in which the pathologist reported early malignant change in the prostate when the condition was unsuspected clinically. Of the other patients, one lived for forty-four months, one for three years, two for thirty-five months and five for two years or over. It would appear, from Table I, that endoscopic resection combined with deep X-ray therapy gives the best showing. In many cases considerable temporary clinical improvement occurred. All these patients were treated with X rays generated at 275 kilovolts, and as a rule large radiation fields were used. No conclusions can be drawn from this series as to the value of radium, as in only two cases was this substance used.

Of the newer methods of deep X-ray administration, one worthy of mention is the so-called small field technique. This has been used with considerable success in other sites than the prostate; it consists in applying the radiation through multiple radiation fields of small size, in order to keep the volume irradiated round the tumour as small as possible. This enables the radiotherapist to raise the dose on the tumour to high levels, and at the same time, to keep the dose on the surrounding normal tissues at a very low level. With this technique, therefore, the untoward effects of irradiation are minimal. The method

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on November 30, 1944.

involves accurate localization of the primary tumour by clinical and radiological means, and then the careful directing of the X-ray beams from the small fields onto the tumour. It is essentially an attempt at primary cure only, and should be used only in selected cases. The tumour dose aimed at is usually 6,000*r* given over a period of about five weeks.

For information about supervoltage X-ray therapy we have to turn to the clinics overseas, as the highest available voltage in Australia is 400,000. A report has been recently published from the Memorial Hospital, New York, where a 1,000,000 volt apparatus has been working for over three years. A series of seventeen patients suffering from carcinoma of the prostate have been treated with this apparatus, and of these seven are alive, four with no evidence of disease. One of these is alive after three years, and two are alive after two years or more. Primary regression appears to be complete. It will be interesting to follow the future history of these patients.

It is held that metastases are present in some form in 30% of cases of prostatic carcinoma when the patients are first examined. Lymphatic gland metastases (especially to the internal iliac glands) occur more commonly than bone metastases. Bone metastases are common, however, and are most often of the osteoblastic type. It is not proposed to discuss the differential diagnosis of bone metastases in this disease, except to mention the difficulty of distinguishing them from *osteitis deformans*. Some interesting work has been done by Batson, who concludes that metastases to the bones in carcinoma of the prostate occur by way of the vertebral venous system.

The great value of deep X-ray therapy in bone metastases is in the relief of pain. This, of course, is also obtained, as you have been told, by hormonal therapy. In cases I have observed in private and hospital practice, relief of pain by X-ray therapy has been obtained in rather more than two-thirds of the cases. Relief, however, may not be of long duration, as is observed with bone metastases from carcinoma of the breast. Glandular metastases may sometimes prove highly radiosensitive. I can remember one patient with advanced disease, bone metastases and œdema of the lower limb from involvement of the iliac glands, who showed considerable clinical improvement and lived for thirty-five months.

Patients who do not obtain relief of pain from the newer methods of treatment described by my colleague, should be given a short course of deep X-ray therapy to the appropriate area. The mechanism of relief of pain is said to be partial dissolution of deposits at the origins of the posterior nerve roots.

The effect of X rays on the testis has been described by several writers, notably Schonberg, Regaud and Ferroux, Wigoder, and Heald, Beard and Lyons. The available literature on the subject, however, is not extensive. There is general agreement that gradual histological changes are observed a few days after irradiation, the chief being atrophy of the seminiferous tubules, the spermatogonia probably being affected first. There is not such general agreement as to the effect on the interstitial cells or on the androgens elaborated by them. It is probable that slight atrophy of the interstitial cells occurs; but it has been stated that complete destruction of these cells is impossible even with large doses of X rays. Huggins has recently advanced this view, and therefore objects to the use of irradiation of the testes in prostatic cancer.

Munger published a paper in 1941, in which he compared the results in two groups of cases, one group in which testicular irradiation was used, and the other without its use. Of 45 patients treated by resection and deep X-ray therapy, but with no irradiation of the testes, only ten survived. Of another group of eleven patients treated by the same methods, but with testicular irradiation as well, eight survived. The longest survival period was seven years. Primary regression was said to be more pronounced in the second group.

There is some evidence that X rays do depress the internal secretion of the testis. Munger gives a dose of 500*r* to the testis. My own view is that the doses to the testes have not been large enough, and I suggest that further work should be done, some patients being treated by irradiation of the testes only, and larger doses than Munger describes being given. I have no personal experience of the value of testicular irradiation in cancer of the prostate.

Radium and radon implantation is still advocated in America, notably by Barringer; but it has been largely given up in England and in this country. The reason for this is the difficulty of applying an even radium dose to the whole prostate because of its anatomical relations. In the isolated case, in which early carcinoma is found at resection, implantation of gold radon seeds may justifiably be brought forward as the method of choice. It may be argued that accurate deep X-ray therapy by the small field technique would be more scientific and effective.

DIFFUSE OTITIS EXTERNA: AN INVESTIGATION AND DISCUSSION.

By B. J. BASIL-JONES,
Squadron Leader, Royal Australian Air Force.

WITH the outbreak of war and its consequent campaigning in tropical and subtropical countries, a problem not seen in civilian practice presented itself to the medical men of the armed services. The condition, an inflammation of the external auditory canal, has been variously termed "diffuse *otitis externa*", "tropical ear", "mycotic ear", "Singapore ear", "surfer's ear", "coral ear" *et cetera*; moreover, confusion exists regarding the ætiology and pathology. In this paper the disease will be referred to as "diffuse otitis externa".

Clinical Features.

For a detailed description of clinical findings one cannot look beyond Daggett's[1] excellent paper on the condition seen in Malta; there seems to be little variation from the symptoms and signs in the various tropical and subtropical areas. Briefly, the inflammation is usually first manifested by itchiness or slight pain in the affected auditory canal. Within twenty-four hours the pain has increased and may be sufficient to prevent the patient from sleeping. At the same time, swelling about the external auditory meatus will have commenced and there may be a little discharge. As the inflammatory œdema of the area increases, pain becomes more intense and may interfere with mastication. Adenitis of the regional lymph nodes is frequently seen by the third day, and elevation of the temperature above normal is usual. At first the canal wall is reddened, swollen and dry; the wall becomes increasingly moist until it has a yellow or white appearance due to "soggy" outer layers of epithelium, which eventually desquamate. Discharge may be copious. Deafness is not a prominent symptom, and usually is due to occlusion of the canal by swelling, or in the chronic case, to thickening of the external layers of the tympanic membrane. Once the inflammatory state is established, it is uncommon to see a return to normal in less than five to seven days; a few patients may have otorrhœa for weeks.

Incidence.

Collins,[2] in his summary of ear, nose and throat diseases in the Middle East, reports that *otitis externa* was responsible for 2·15% of total hospital admissions (19% of admissions to the ear, nose and throat wards). Patients with this complaint made up 16% of the ear, nose and throat out-patients. Daggett reports a similar state of affairs in Malta, with a noticeable increase in the summer months. At a Royal Australian Air Force hospital in the New Guinea area, 1·74% of the patients admitted over a period of six months were suffering from diffuse *otitis externa*. The in-patients were only those whose symptoms were so severe as to require admission to hospital. Much greater must be the number who are treated

on "sick parades" without such constitutional disturbances. Hence it is evident that, while the disability is not usually severe or lasting, there is considerable interference with the efficiency of fighting men by this condition.

The Present Investigation.

In an attempt to throw some light on the nature of diffuse *otitis externa*, the examination from the bacteriological and mycological aspects of a series of untreated patients was undertaken at a Royal Australian Air Force field hospital. At the same time, a number of apparently normal ears were swabbed and examined. An airman who had spent at least three months in the tropics without any ear symptoms was regarded as having a normal ear for the purposes of the examination. Over a period of six months, 77 patients suffering from diffuse external otitis, and 33 men with apparently normal ears, were examined.

From the laboratory, the medical officers of the squadrons and other units in the particular area were provided with sterile apparatus to perform ear swabbings, together with a *questionnaire* form for each patient requesting the appearance of the canal wall, the chief symptoms and signs and the treatment proposed. It was hoped that some relationship between clinical and laboratory findings might be demonstrated. Only the ears of patients who had received no treatment and were "reporting sick" for the first time were swabbed, so that the bacteriological and mycological conditions would not be altered by therapeutic measures. The examining medical officer swabbed the affected ear, immediately inoculated the beef-infusion broth medium which was provided, and returned the medium and swab-stick to the laboratory as soon as possible. From the swab-stick, a sheep's-blood-agar plate and Sabouraud's medium were inoculated; a wet-film suspension was examined by direct microscopy for cells, hyphæ, spores *et cetera*. The attempted cultures on Sabouraud's medium were examined daily for growth, and none was declared "negative" until after one month's incubation.

Findings Among 77 Patients Suffering from Diffuse Otitis Externa.

Clinical Findings.—Pain was the presenting symptom in 65 cases; in the remaining twelve cases, six patients complained of discharge from the ear, four complained of itchiness of the external canal, and in two cases no symptom was recorded. Deafness was uncommon; only one man had this symptom, and although his external canal was almost occluded by swelling, his history suggested coexistent *otitis media*.

The medical officers were asked to indicate by a mark on the *questionnaire* (Table I) the description which most nearly approximated the appearance of the wall of the external auditory canal at the time of swabbing, with the results shown. In the remaining case of the 77, the wall was described as having a "white fungoid growth". Growing mycelium was seen in the canal at the clinical examination of five airmen, and in each instance a fungus was grown on Sabouraud's medium. From Table I it may be seen that the ear was discharging in thirty cases. Of the other signs, œdema of the external auditory canal was reported in forty cases, and adenitis of the regional lymph nodes was present in twenty-four. The temperature was recorded by the medical officers in sixty cases, and was found to be raised above normal in six, the highest reading being 102° F. It would appear that there is an unduly great variability in the clinical findings; but it must be remembered that there were a number of different observers, and that all patients are not at the same stage of the disease when first examined.

TABLE I.

Appearance of Canal Wall.	Number of Cases.
Apparently normal	1
Dry, white, desquamating	4
Dry, reddened	16
"Cheesy" desquamation	17
"Blotting paper wall"	8
White wall with watery or purulent discharge	13
Red wall with watery or purulent discharge	17
Total	76

Direct Microscopic Examination.—A saline suspension of material taken from the swab-stick was microscopically examined by the "wet-film" method in 75 of the 77 cases, with the following results: epithelial cells were seen in each of the 75 cases; organisms, usually profuse and rod-shaped, were visible in 70; mycelium or spores were seen in ten cases, but subsequent attempted culture was successful in eight of these only; leucocytes were surprisingly few, being seen in only seven instances; red blood cells were present in four cases.

Bacteriological Examination.—The bacteriological findings, and the relation of the organisms to the growth or otherwise of fungi, are most readily demonstrated when set down as in Table II. A pure culture of an organism was not uncommon, but mixed cultures were the rule. Therefore, on each blood-agar plate the predominating organism and secondary organisms were noted. Growth in the nutrient broth medium was also taken into consideration. Other organisms cultured, but never predominating, were Neisseria (not identified fully), *Micrococcus tetragenus*, diphtheroid organisms and Gram-positive bacilli (*Bacterium megatherium*, *Chromobacterium prodigiosum*, *et cetera*). *Pseudomonas pyocyanea* appeared in pure culture in 22 instances, *Staphylococcus albus* in two, and a coliform organism in one instance. On six occasions *Pseudomonas pyocyanea* produced a hæmolysin to the sheep's red cells, as did *Staphylococcus aureus* and *Staphylococcus albus* in one case each. To assess the significance of *Proteus vulgaris* in cultures was difficult. Sometimes it contaminated otherwise sterile equipment, so its appearance was viewed with suspicion; it is usually purely saphrophytic towards its host, but its characteristic of "swarming" on solid media made it hard to judge which was the predominant organism in a culture.

TABLE II.

Organism.	Number of Cases in which Culture was Obtained.	Cases in which Organism Predominated in Culture.	Number of Times Fungus Cultured with Organism.
Pseudomonas pyocyanea	58	56	31
Staphylococcus albus	25	8	2
Proteus vulgaris	17	5	2
Staphylococcus aureus	16	4	2
Coliform organisms	13	2	—
Gram-positive bacillus of subtilis group	4	1	1
Streptococcus viridans	2	1	—
Total	135	77	38

Mycological Findings.—The cultivation of fungi on Sabouraud's medium was attempted in 76 of the 77 cases; it was successful in 39 instances. From three airmen, three different types of fungi were grown, and from a further three, two different types were grown. The available literature on the mycoses during the investigation was small and somewhat confusing, so that it was found impossible to classify the fungi accurately, in spite of scrutiny of colony formation and microscopic appearances.

Growth resembling *Monilia* was present in 33 colonies (endomyces 21, saccharomyces 12), growth resembling mucor was present in thirteen colonies, growth resembling *Aspergillus* was present in two colonies, and growth resembling *Trichophyton violaceum* was present in one colony, making a total of 49 colonies.

Findings Among 33 Airmen with Apparently Normal Ears.

Clinical Findings.—No visual examination of the external canal was made, the ear being swabbed with a dry sterile swab-stick only. The laboratory procedure was the same as for the abnormal ears. On the swabbing cerumen was usually to be seen; this contrasted with the abnormal cases, in which it was rarely found, especially if the disease was of more than a day or so's duration.

Direct Microscopic Examination.—The wet-film examination of saline suspensions revealed that epithelial cells were present in 32 of the 33 airmen, and varied in number; organisms, variable in number, were found in 21 men and were absent from 12; no mycelium or spores were seen.

Bacteriological Examination.—The cultures made from the "normal" ears gave surprisingly consistent results, as can be seen from Table III. Other organisms grown, but

TABLE III.

Organism.	Number of Men from Whom Cultured.	Number of Cases in which Predominant in Culture.	Number of Times Fungus Cultured with Organism.
Staphylococcus albus ..	33	29	7
Staphylococcus aureus ..	6	2	—
Proteus vulgaris	1	1	—
Gram-positive bacillus of subtilis group	1	1	—
Total	41	33	7

never predominating, were *Micrococcus tetragenus*, diphtheroid organisms and various Neisseria, all of which occurred commonly, and a few incompletely identified Gram-negative and Gram-positive bacilli.

Mycological Examination.—The cultivation of fungi was successful in seven instances, although none were seen by direct microscopic examination. Growth resembling *Monilia* was present in all seven of these, as follows: endomyces in four cultures, saccharomyces in two cultures, and both endomyces and saccharomyces in one culture.

Discussion.

For completeness of this investigation, it would have been desirable to make a cultural investigation for anaerobic organisms; but the facilities to do so were not available. Nevertheless, some benefit may be derived from reviewing the information here obtained and the opinions and results of other workers.

Friedman and Hinkel[3] describe diffuse *otitis externa* as "a short-lived and self-limiting disease, more severe than furunculosis, involving the external canal more or less along its entire length". The descriptions of Daggett from Malta and of Collins from the Middle East of the disease among servicemen, suggest that it does not differ from what we see in the South-West Pacific Area.

W. D. Gill[4] presents a complete classification of the causes of inflammation in this disease, and includes pyogenic and non-pyogenic bacteria, mycoses, budding forms and mycelial forms, and the higher bacteria—for example, tubercle bacilli, actinomyces *et cetera*. Collins remarks on the deficiency of true waxy secretion, and Burrell[5] lays great stress upon this point, stating "that no external otitis is ever seen with normal wax secretion, and furthermore, no outer canal with imperfect wax formation is completely free from some form of external otitis".

When the present findings in men suffering from diffuse *otitis externa* and those with apparently normal ears are compared, there are several points which stand out. Most striking is the appearance and predominance of *Pseudomonas pyocyanea* in the bacteria grown from diseased ears. *Pseudomonas pyocanea* has for a long time been known to associate itself with wounds and dead tissues, but it is generally regarded as a non-invasive organism. However, it does occasionally take on pathogenicity—for example, in suppurative *otitis media* in children—and it is impossible to overlook its frequent occurrence, often in pure culture, in patients suffering from diffuse *otitis externa*. At least the organism must be suspected as a pathogen and invader. According to Williams, Montgomery and Powell,[6] Greaves, working for the United States Navy, grew *Pseudomonas pyocyanea* from every one of 75 patients suffering from this disease; Morley,[7] serving with the Royal Air Force in Aden, also indicted *Pseudomonas pyocyanea* as the chief offender. On the other hand, Daggett at Malta found diphtheroids more commonly than *Pseudomonas pyocyanea* and suggested that the former were the cause of this condition; however, the cultures from normal ears in this investigation and the benign reputation of the diphtheroids rather discount this theory. Graham Brown,[8] O'Malley,[9] and Capps[10] found streptococci and staphylococci, while Friedman and Hinkel found that staphylococci and diphtheroids were most commonly present. It is considered that *Pseudomonas pyocyanea* is seen more frequently and may be more virulent in tropical zones than in temperate zones, and that those writers who found the pyogenic cocci as the chief bacteria in diffuse *otitis externa* were probably working in cold climates.

That there is a coincidental increase in the bacterial and mycotic flora of the external canal in diffuse *otitis externa* becomes evident on examination of results. In the direct microscopic examination of wet-film preparations, organisms were seen in 70 of 75 swabbings from diseased ears and were usually profuse, whereas they were seen in but 21 of 33 swabbings from normal ears and were variable in number. This was borne out by the plate cultures. Similarly, attempted culture of fungi from abnormal ears was successful in 39 of 76 cases, whereas from normal ears fungi were grown in but seven of 33 instances.

A careful analysis failed to establish a relationship between individual clinical features and the bacteria and fungi cultured. No symptom or sign (including the appearance of the canal wall) or combination of them was peculiar to any bacterium. Apart from those patients, five in number, in whom mycelium was seen growing in the external canal, no relationship could be demonstrated between the clinical findings and the culture of fungi. An examination of Tables II and III reveals that the fungi did not elect to grow in the company of any particular organism.

It was surprising that in eight instances of acute inflammation, flora resembling that of the normal ear should be cultivated. The predominating organism was the *Staphylococcus albus*, and in only one case did the direct examination of the wet film suggest that the total number of organisms was increased. In only one instance could the secondary organism, *Staphylococcus aureus*, be suspected, and fungi were cultured in but two of the eight.

To what extent otomycosis is concerned in this inflammatory state is the subject of great debate. A number of American writers lay stress upon the intense itching and the sense of fullness (rather than pain) which characterize mycotic infections of the ear. Graham Brown asserts that the mycosis is primary and paves the way for bacterial infection; he is supported by Davis,[11] Capps and Whalen;[12] the latter regards the response to treatment aimed only at fungi, as evidence of their pathogenicity. On the other hand, Ewart Martin[13] regards the mycosis as secondary to bacterial infection, and Friedman and Hinkel give it as their opinion that fungous infections "produce no symptoms, merely filling the canal with debris and rendering it more vulnerable to infection". Greaves failed to grow fungus from one of his 75 patients, and Daggett reports otomycosis as rare in Malta. This investigation lends little support to the view that the mycosis is the primary cause, but reveals an increase in the fungi in the diseased state in parallel with an increase in bacteria.

Treatment.

The unit medical officer was asked to record the treatment he proposed for each patient. As might be expected, there was a wide variation in the methods adopted, so that

it is valueless to quote figures. Most medical officers did not state that a toilet of the ear was performed (although no doubt such was the case), merely indicating the medication chosen. Glycerin with ichthyol, carbolic acid or other substance was by far the most popular choice in the early stages; its absorption of fluid appears to relieve the tension of the œdematous canal. *Spiritus Vini Rectificatus* with acriflavine or boric acid was used frequently as a paint or drops in the early treatment; so, too, were aqueous or spiritous solutions of mercurochrome. The insufflation of sulphanilamide powder was often tried when the acute swelling had subsided; this was found to carry considerable risk of dermatitis. Patients were seen whose skin appeared to be sensitized by the local application of the powder, and acute dermatitis broke out when one of the sulphonamide drugs was subsequently administered locally or by mouth. Hydrogen peroxide and Castellani's paint were sometimes administered, and when the medical officers found the *Pseudomonas pyocyanea* was commonly present, some tried acetic acid (1% to 2%) applied as a paint, as drops, or in a wick packed loosely into the canal. One medical officer, stimulated by Burrell's paper (*vide infra*), aimed at improving general nutrition and the secretion of wax in the external canal by prescribing vitamins *B* and *C*, and sulphur (one drachm per day), as well as local treatment.

No specific treatment for diffuse *otitis externa* has yet been outlined. All writers agree upon the importance of adequately cleansing the canal; Daggett suggests that frequent recurrences may be due to failure to remove epithelial debris from the "deep anterior recess" in the wall of the canal next to the tympanic membrane. It seems unlikely that the heroic method recommended by Earnshaw[14] of very tight packing of the canal during the stage of œdema will be widely adopted. Acetic acid in 1% or 2% strength has been successfully used against *Pseudomonas pyocyanea* in the ear by Friedman and Hinkel; some of the unit medical officers reported good results during this investigation with acetic acid applied preferably in a wick or by drops, but an insufficient number of patients were so treated to allow any conclusions to be drawn. The sulphonamides and penicillin seem inactive against this organism. When the presence of otomycosis has been established, the method of treatment recommended by Reeh,[15] Gill and Whalen is the use of metacresyl acetate ("Cresatin") or thymol (1%) in alcohol (70%). Above all, before the efficacy of any mode of treatment in this disease is assessed, it should be remembered that the condition tends to subside spontaneously.

Ætiology.

This investigation has brought us no nearer to the cause of diffuse *otitis externa*. Morely, Collins and Daggett have all reviewed the influence of sea-bathing, communal freshwater bathing, lack of bathing facilities, extreme dustiness and excessive sweating as primary ætiological factors. It is agreed that the heat and moisture of the tropics prepare the canal for organisms to flourish; but the question of how the intact epithelium becomes invaded remains unanswered. Burrell looks upon the disease from a new angle. He considers that it arises from an imperfect formation of cerumen, which he regards as a manifestation of improper protein-sulphur metabolism. It is his opinion that this upset in protein-sulphur metabolism may result from (*a*) inadequate protein-sulphur intake (low cystein content of meat), (*b*) excessive loss of systemic protein-sulphur (the commonest cause being chronic spermatorrhœa), (*c*) various endocrine imbalances. Burrell hopes to be able to elaborate his theory in a later paper.

Conclusions.

1. Diffuse *otitis externa* or "tropical ear" is a disease of no great severity, largely self-limiting, and having a high incidence among servicemen in the tropics.

2. The bacterial and mycotic flora of the external auditory canal are increased in this disease. *Pseudomonas pyocyanea* predominates in cultures and is possibly pathogenic.

3. No cause of diffuse *otitis externa* has yet been established.

Treatment is chiefly empirical; but better results may be obtained if, when possible, microscopic and cultural examinations are made and therapeutic measures chosen accordingly.

Summary.

1. The results of an investigation of the clinical features, bacteriology and mycology of 77 cases of diffuse *otitis externa*, and of 33 control cases, in which the ears were apparently normal under similar conditions, are reported.

2. The findings of other workers, theories as to the cause of the condition, and methods of treatment are discussed and conclusions are drawn.

Acknowledgements.

I have to thank the Director-General of Medical Services (Air) for permission to publish this paper, and Sergeant H. Turner, my laboratory assistant, without whose help the investigation could not have been carried out.

References.

(1) W. I. Daggett: "Desquamative Otitis Externa in Malta", *The Journal of Laryngology and Otology*, Volume LVII, 1942, page 427.
(2) E. G. Collins: "Ear, Nose and Throat Casualties in a General Hospital in the Middle East", *British Medical Journal*, Volume II, 1943, page 388.
(3) H. S. Friedman and C. L. Hinkel: "External Otitis: A Study of the Comparative Merits of Medical and Roentgen Therapy", *Archives of Otolaryngology*, Volume XXXIII, 1941, page 749.
(4) W. D. Gill: "Otitis Externa", *Annals of Otology, Rhinology and Laryngology*, Volume LI, 1942, page 370.
(5) R. Burrell: "Preventable Deafness", *The South African Medical Journal*, Volume XVII, 1943, page 40.
(6) H. L. Williams, H. Montgomery and W. N. Powell: "Dermatitis of the Ear", *The Journal of the American Medical Association*, Volume CXIII, 1939, page 641.
(7) G. Morley: "Otitis Externa: Hot-Weather Ear: An Investigation of 100 Cases and a Method of Treatment", *British Medical Journal*, Volume I, 1938, page 373.
(8) L. Graham Brown: "Otitis Externa", *British Medical Journal*, Volume II, 1937, page 698.
(9) J. F. O'Malley: "Treatment of External Otitis and Furunculosis of the External Auditory Meatus", *The Lancet*, Volume CCIX, 1925, page 142.
(10) F. C. W. Capps: "The Treatment of Otitis Externa", *British Medical Journal*, Volume I, 1938, page 958.
(11) E. L. Davis: "Mycotic Ear Infections at an Advanced Allied Base", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1943, page 437.
(12) E. J. Whalen: "Fungus Infections of the External Ear", *The Journal of the American Medical Association*, Volume CXI, 1938, page 502.
(13) G. Ewart Martin: *Proceedings of the Royal Society of Medicine*, Volume XXXI, 1937, page 511.
(14) H. Earnshaw: "A Method of Treatment of Tropical Ear", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1943, page 438.
(15) M. J. Reeh: "Treatment of Otomycosis", *Annals of Otology, Rhinology and Laryngology*, Volume LI, 1942, page 146.

THE "RADICAL" TREATMENT OF OTITIS EXTERNA IN THE FIELD.

By CHARLES L. COGHLAN,
Captain, Australian Army Medical Corps, Australia.

Otitis externa is a simple condition, but one which from the army standpoint is important as a disability to troops and a cause of the depletion of the fighting strength of units. About 12% of the troops under my care suffered from this condition. The observations were made as a regimental medical officer in the field with its dust and moist conditions. Owing to the isolated circumstances bacteriological examinations were not possible and consultations with otologists were out of the question.

Ætiology.

I have been told that a fungus is a basic cause of the condition, and the characteristic shedding of the epithelium

would seem to support this view. Further, the greenish-blue pigment at the frank pus stage suggests to me a *Bacillus pyocyaneus* infection usually as a contaminant. There are probably many other factors in the ætiology. In one case, the patient having a wide external meatus, it was possible to see the grey mycelial strands with their terminal spores projecting into the lumen of the canal from the concave walls of the meatus. Further, the condition has been found in personnel who have not at any time bathed in the sea and who use "Vaseline" plugs in the ears whilst swimming in the rivers. In these areas the dust was plentiful, and the amount present on a wool plug was noticeable.

From this it was concluded that the fungus spores are omnipresent and are probably normal inhabitants of the body surface. They become activated by a change in medium—for example, bathing and excessive perspiration.

Clinical Aspects and Diagnosis.

Symptoms.

Otitis externa can be placed into two groups—the painless and the painful. The painless type causes the patient to complain of a feeling of deafness or of seropurulent discharge or of both. The painful type presents as its chief symptoms in the early stages an ache, and when the swelling of the ear is well developed, a throbbing pain. The ache is noticed by the soldier when he places the

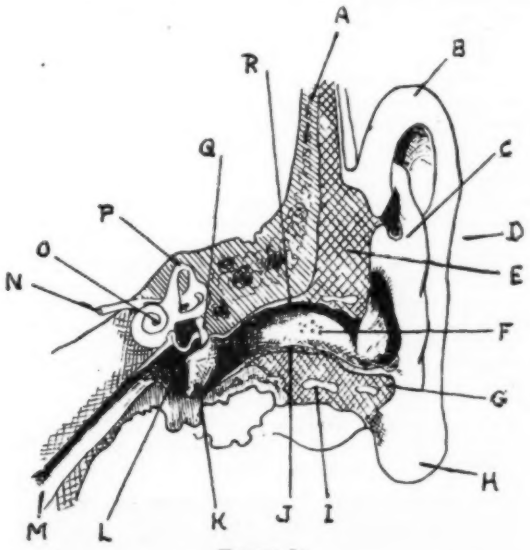

FIGURE IA.

Normal. Vertical transverse section through centre of meatus and canal. A: temporal bone; B: helix; C: antihelix; D: pinna; E. subcutaneous tissue; F: hair follicles, cerumen glands; G: tragus; H: lobe; I: cartilage; J: subepithelial cellular tissue; K: *membrana tympani*; L: chamber of middle ear; M: Eustachian tube; N: eighth nerve; O: cochlea; P: semicircular canals; Q: ossicles; R. subepithelial cellular tissue.

affected ear on the blanket at night, and is due to the weight of the head pressing on the tragus and the pinna, thereby causing a sickening pain or "ear-ache". This pain may become a slight throb of intermittent nature when the patient is in the horizontal position. The ear-ache is often first noticed on movement of the mandibular articulation. In the early months of the period under consideration, when the troops were not so "tropical ear conscious", they ignored this stage. Today, however, this is recognized as a premonitory sign by all ranks.

The pain may also be throbbing in nature and seem to be "inside the ear"; it may be severe on lying down, and sleep is often impossible. If either symptom in the painless type is ignored, the process continues until the symptoms of the painful type occur. The two clinical types are actually stages in the one process. In the early months the painful type was in the majority, but in the last seven months the painless type has predominated, owing to earlier reporting for treatment. So much for the symptoms.

Signs.

The commonest signs encountered can be divided into those seen externally and those seen by the auriscope.

The external signs are illustrated in Figures IA, IB and IIA. In the painless variety a slight seropurulent dis-

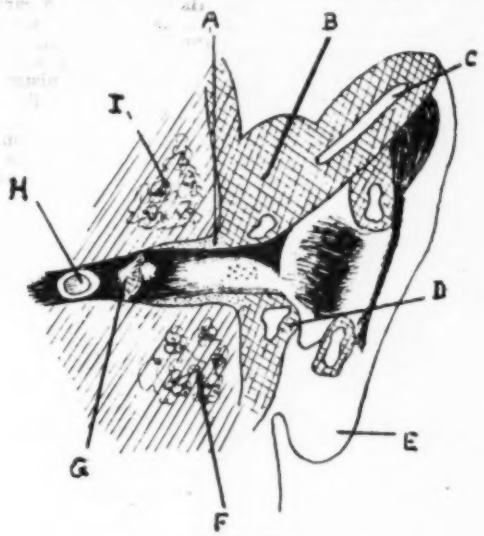

FIGURE IB.

Normal. Horizontal transverse section through centre of meatus and canal. A: subepithelial cellular tissue; B: subcutaneous tissue; C: cartilage; D: tragus with cartilage; E: lobe; F: temporal bone; G: *membrana tympani*; H: Eustachian tube; I: temporal bone.

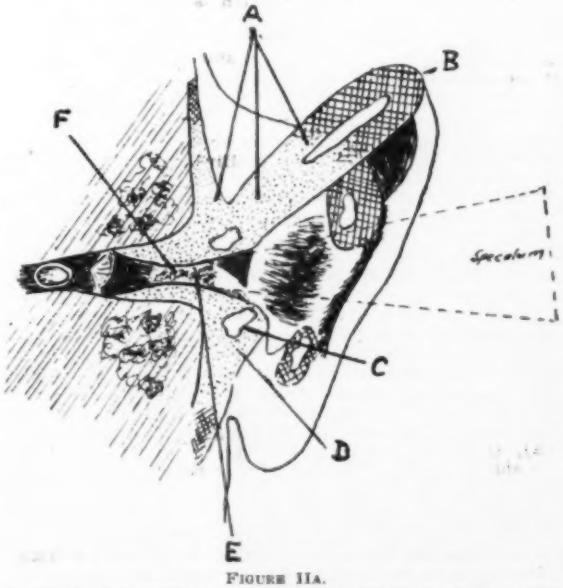

FIGURE IIA.

Horizontal transverse section through centre of meatus and canal showing cellular tissue, œdema and explanation of clinical signs. A: spreading œdema; B: pinna pushed laterally by œdema; C: tragus swollen, acutely tender on pressure; D: spreading œdema; E: debris, seropurulent discharge and epithelial cells; F: narrowed meatus and canal.

charge, often with a greenish-blue colour, is present, together with some epithelial debris and excoriation of the meatus. One or all of these signs may be present in the one case. In the painful type considerable erythema and soft-tissue œdema are present, involving in front the tragus and the subcutaneous tissue immediately anterior to and above and below the tragus. The œdema is present also medial to and on the posterior aspect of the pinna of the ear, somewhat resembling that seen in acute mastoiditis.

It is of interest that the œdema presents round the tragus before it affects the mastoid and pinna areas. Exquisite tenderness is present at both the tragus area and medial to the pinna. The tragus tenderness is an index of the progress of the pathological process in the subepithelial cellular tissue and the subcutaneous tissue shown in Figure IIA. Adenitis (pre-auricular, post-auricular and upper cervical) is present in this, the acutely developed stage.

The internal signs are illustrated in Figure IIB. Signs visible through the auriscope are different in the two types. In the painless variety frank pus is present, creamy or greenish-blue in colour, or of both colours, with a shedding of the epithelium in flakes similar to those seen between the toes in tinea of the feet. When this debris

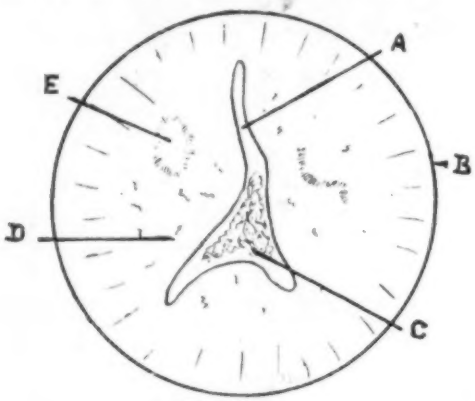

FIGURE IIB.

Auriscope picture first seen at advanced painful œdematous stage. A: slit of meatus; B: speculum—edge of tapered end against œdematous tissue; C: debris and discharge—"a suggestion in the abyss beyond"; D: congested, œdematous and squamous epithelial surface, red in colour; E: early furuncle.

is removed by ear toilet, the subepithelial layer is seen to be congested and bleeds readily, and the mouths of the cerumen glands are blocked and pouting into the lumen of the canal, which, however, at this stage is relatively patent. The drum is clear, and in the majority of cases its welcome sheen is obvious. The pathological process in this case would appear to concern primarily the surface of the squamous epithelium lining the canal.

In the painful variety one must consider the early and the advanced stages. In the early stage the essential visible signs, which incidentally are premonitory of deeper cellulitis, are absence of recent cerumen and a refractile and corrugated appearance of the superficial epithelial layers, due to their being undermined by the infection. The absence of cerumen would suggest a blockage of glands, and this may possibly lead to the cellular tissue œdema noted later. The refractile layer is shed in flakes in the more advanced seropurulent stage. Further, at this stage the lumen of the meatus is still circular and intact, though slightly tender to speculum pressure.

The advanced stage is not frequently encountered these days unless early diagnosis and treatment are delayed. It would appear to be a generalized cellulitis of the subcutaneous and subepithelial tissues shown in Figure IIA, with the œdema and external signs to which reference has been made. The meatus itself is a vertical or oblique slit of various degrees of obliteration and dilatability. Often it is not possible to insert the finest speculum of the auriscope beyond the opening without causing exquisite pain intolerable to the patient (see Figure IIB). In this condition one sees the area outlined by the tapered end of the speculum resting against the œdematous meatus. The common clinical picture with its possible components is represented. The erythema is pronounced and the epithelium bleeds readily. Pressure by the speculum not only produces unbearable pain, but also by tissue transmission reduces the lumen still further. Through the irregular slit of the lumen one can detect a "suggestion of debris in the abyss beyond"; naturally the drum cannot be seen. At this stage of the cellular tissue, œdema with blood stream absorption, general signs of mild toxæmia with a temperature of 99° to 100° F., and also the adenitis referred to above, are present.

Treatment.

The treatment used has been called "radical", as many otologists are most conservative and employ a "no touch" technique, treatment being confined to *Spiritus Vini Methylatus* drops and watchful expectancy. My results with this method were not encouraging. However, the treatment I employed enabled me to approximate to this technique, in that the number of toilets was reduced to a minimum. Other techniques involving daily though less thorough toilets have been tried, but were not found satisfactory.

The objects of treatment are: (i) to keep the soldier in the field without evacuation, and to enable the patient, even when the condition is in the acutely painful stge, to be under ambulatory treatment; (ii) to prevent chronicity.

The essentials of the treatment are as follows: (i) early treatment; (ii) to tackle the area of the infecting medium as rapidly and as directly as possible; (iii) a "drill" by the regimental aid post team, which results in speed, more thorough treatment and the reduction to a minimum of visits to the regimental aid post; (iv) education of the soldier to adhere strictly to instructions—namely, the prevention of the wetting of the inside of the ears during ablution while under treatment and as a future prophylactic measure.

The requirements for the "drill" are a darkened tent and an auriscope (army pattern) with a special adaptor to give the most effective lighting for long and frequent treatments.

Preparation of Patient.

Patients with ear conditions are left until the last; the relatively "clean" lesions—for example, those for final treatment and those known to be resolving—are treated

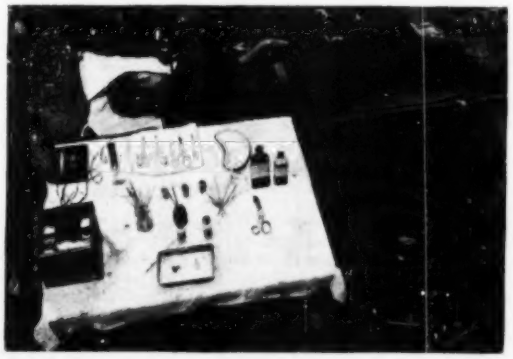

FIGURE IIIA.

first to avoid cross-infection from new and therefore "dirty" lesions. The sergeant places the patient horizontally on the raised stretcher so that the canal of the ear is as near the vertical as possible. He places a clean towel over the nose and mouth to prevent the transmission of

upper respiratory tract infection from the patient, as well as to stop the patient from seeing too much (see Figures IIIA and IIIB).

The reasons for the nature of the treatment are explained to the patient, who is informed that it may be uncomfortable and even slightly painful, but that strict adherence to instructions will result in speedy treatment

FIGURE IIIB.

and adequate protection of the drum. It may be considered that gravity will act with the patient in this position and retain the debris; but the capillary attraction of the swab overcomes this. This position has been found the most satisfactory.

The Swabs.

Preference is given to the United States type of circular pattern sticks, which are strong and may be sterilized after use. The local products are square, rough and fragile. The swabs are made with due consideration for the aperture of the canal and for the depth of the canal, providing for the avoidance of the sensitive and delicate *membrana tympani*, and allowing vision between the edge of the speculum and the swab, thereby preventing "blind" swabbing.

The following types are used (Figure IV). "A" is a sharp swab, and is used for removing loose particles from

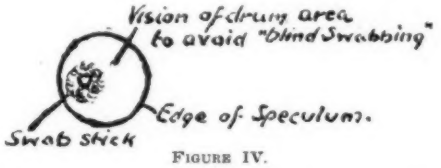

FIGURE IV.

a relatively patent canal, care being taken to avoid trauma to the congested epithelium, which causes a relatively profuse hæmorrhage and thus interrupts the toilet (see Figure V(*a*)). "B" is long, flexible and thin. It is used for swabbing through a slit opening, as in Figures IIB and V(*b*), even when the speculum cannot enter the canal, and absorbing some of the discharge for inspection without danger to the drum. It is also used when the œdema has subsided somewhat and the speculum can be pushed further in without undue pain to the patient. In this case it is used to swab well down into the canal and over the drum area with a minimum risk of trauma to this delicate structure (see Figure V(*c*)). "C" is similar in principle to the "coarse" cavity burr used by the dentist, and is of value only when the canal is normal or nearly normal in size. It is about half as long as the "B" type and is fluffier and wider; it is of two types—a thin one to go through the fine speculum C.1, and a thicker one to go through the larger speculum C.2. It is used for its lateral curettage effect on the walls of the canal (see Figure V(*d*)). All the swabs are used once only at the one toilet, and if the toilet is long or a number of toilets are to be made, one man is detailed for and trained in the making and supply of swabs. The terms "A", "B" and "C" are used instead of such phrases as "sharp", "long", "thin", "thick" and "fluffy", which often produce disturbing effects on apprehensive patients.

The Personnel of the Regimental Aid Post Team.

Apart from myself, the personnel of the team comprises a swab-maker, a swab-holder—two swab-holders make things much easier—and a speculum cleaner. Some idea of the set-up is shown in Figures IIIA and IIIB.

The Ear Toilet.

The stage is now set, and the first auriscopic examination is a "canal reconnaissance", to decide whether any of the following conditions are present: (*a*) excoriation and seborrhœa of the external meatus, which may be the cause of the *otitis externa*; (*b*) patency or otherwise of the canal; and (*c*) a discharge—seropurulent, greenish-blue, flakes of epithelium or all three.

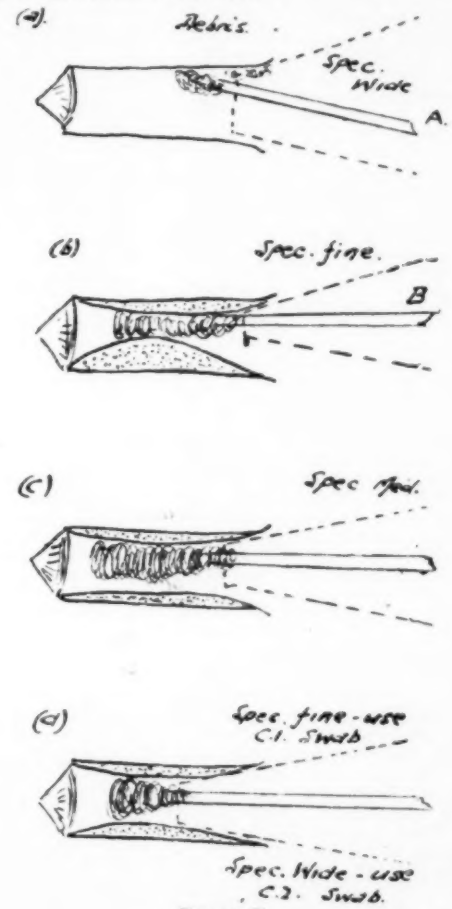

FIGURE V.
Use of specific types.

Next comes the "ear toilet". Any infected areas around the external meatus—for example, skin cracks, seborrhœa, folliculitis—are smeared, after cleaning, with *Unguentum Acidi Salicylici* (2%) or Whitfield's ointment. The speculum is then passed into the canal. If the condition is early, old dried wax is found and removed (it is to be noted that recent cerumen is absent at this stage). The corrugated and refractile epithelium is removed by the use of appropriate swabs. Care is taken to avoid trauma to the epithelium causing hæmorrhage, which occludes the view of the drum and prolongs the toilet. Should this occur, treatment must be continued with the patient in

the sitting position. Occasionally at this stage, as at the equivalent stage during resolution, the swab touching the drum and drum margin may produce a sickening pain and a fit of violent coughing, as one would expect. If the drum is covered with debris, this is cleaned by absorption on cotton wool and then the drum is left well alone. The practice of aural lavage, though used by many, is not considered effective, and may prove dangerous in an pathological canal. The canal is then swabbed out with a solution containing *Acidum Salicylicum* (2%), *Acidum Acticum* (0·5%) and *Spiritus Vini Methylatus* (to 100%). This is called the "drying solution", and may be used on swabs or as ear drops. When the canal has been swabbed out with drying solution, a plug of cotton wool is inserted and left for twenty-four hours. The patient is told to report if the ear becomes more painful during this time. Pain is indicative of a developing subepithelial cellulitis in association with blocked cerumen glands. The toilet is then again performed, and heat is applied to the ear three times a day until the pain is eased. If the pathological process is intercepted at this stage, it usually subsides.

If the condition is advanced and œdema is present, the most effective toilet possible is performed with a fine "B" swab, and as much liquid discharge as possible is absorbed and removed (see Figure V(*b*)). The drying solution is used on "B" swabs, and drops may even be added, provided the air bubble can escape through the swollen lumen; otherwise swabbing must suffice. The attention is next directed to reduction of the œdema. Fourteen months ago this was achieved by ichthyol and glycerin wicks—a treatment which I found unsuccessful; it was mainly symptomatic, took longer, and the ichthyol like other coloured antiseptics—*Pigmentum Castellani*, acriflavine, argyrol and mercurochrome, to mention but a few—masked the degree of erythema and prevented subsequent painless and rapid estimation of the rate and degree of resolution. The possibility of gauze packing to reduce the œdema was considered. It is realized that pressure on an inflamed area would appear to be a violation of the conservative principles usually followed to achieve localization of a pathological process, and such pressure should really cause a lateral and medial tracking of the infection. However, it was found during the past eleven months that the most effective method was to pack the œdematous meatus and the canal as deeply and as centrifugally as possible with eight-inch lengths of gauze strip, one-eighth or one-quarter of an inch wide (according to the degree of obliteration of the lumen and of pain from œdema), soaked in a 10% solution of magnesium sulphate in glycerin. Heat was then applied over the whole ear, the area treated extending anteriorly and posteriorly for some distance; the skin was smeared with "Vaseline" as a preliminary to the application of heat (see Figure VI).

The acute, throbbing pain temporarily accentuated by the packing is relieved in approximately three hours, and during this time lying down and hard work, which increase the throbbing pain, are not encouraged. The soldier is placed on light duty until the acute throbbing eases, in twelve hours at the most. It rarely persists beyond three hours. About the third day the œdema is reduced by approximately half and the packing often "falls out on the blanket"; this shows that ear tenderness is much less, and that the affected ear will bear the weight of the head without discomfort—a fact accidentally revealed by the soldier's statement. The ear is examined again on the third day, and it may be found that the dressing has fallen out, or if it is still present, it is foul-smelling. The meatus on auriscopic examination presents an irregular outline due to uneven reduction of the œdema (see Figure VII).

The usual picture by the third day in the acute œdema stage is as shown. The epithelium is of a pinkish colour indicating subsiding erythema—an estimation helped by the use of colourless antiseptics in the ear toilet. Over the surface can be seen blocked follicles, and in some places one or two of these which have advanced a stage further and present as furuncles; a seropurulent discharge of variable colour and turbidity covers the epithelial surface. At this stage, as œdema is less and a better view of the drum is possible, a more complete toilet is performed with a "B" swab to avoid pushing any debris or discharge further towards the drum. A C.1 speculum may be used if indicated (see Figures V(*c*) and V(*d*)). In performing the toilet, as much of the drum as possible is revealed; but in the process any adherent debris is allowed to separate in its own time. The canal is swabbed with the "drying solution", drops are left in, and it has been my custom to

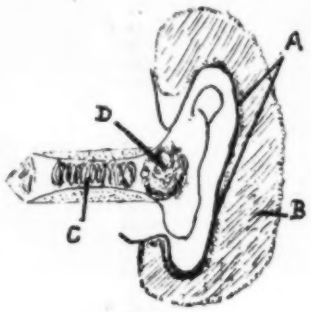

FIGURE VI.
Initial "hygroscopic-heat" treatment. A: skin treated with "Vaseline"; B: poultice applied three times a day until acute symptoms subside; C: gauze strip (one-eighth to one-quarter inch) soaked in magnesium sulphate and glycerin solution (10%); D: cotton wool pad.

pack the canal with a one-quarter inch gauze strip soaked in a 10% solution of magnesium sulphate in glycerin and leave the packing *in situ* for one week. At the end of this time the gauze pack is again removed, and while the canal aperture is still irregular, the epithelium is smoother, the follicles are less pouting, and the discharge is much less or may even be absent. The erythema is even more

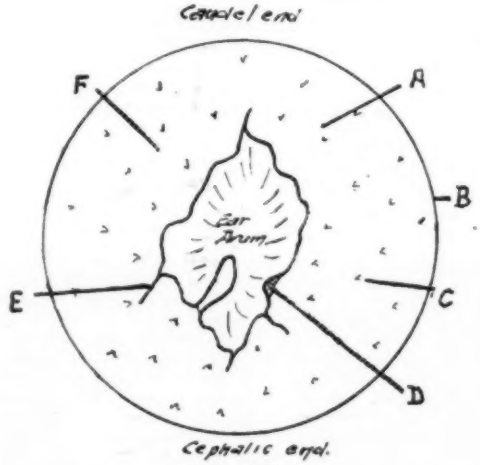

FIGURE VII.
Auriscopic picture on the third day of examination. A: pink subsiding erythema; B: speculum; C: cerumen follicles with pouting mouths; D: furuncle well advanced; E: epithelial folds in which debris may persist and temporary pocketing occur, effectively dealt with by the first type of swab; F: seropurulent discharge of variable turbidity.

reduced, the cellulitis is resolving and the drum sheen is revealed in all its glory.

The canal is swabbed out with "drying solution" and a one-quarter inch gauze strip soaked in the same solution is left in place for a further week; at the end of this time the ear toilet is repeated and a cotton wool swab is left in place for twelve hours. The patient is instructed to

remove it at the end of this time, and is again advised on the prophylaxis of tropical ear. On review four to six weeks after the onset of the acute *otitis externa*, the canal presents its normal lumen, a pinkish-white epithelium and fresh cerumen. The canal has returned to normal.

Complications.

Before Treatment.

Men with old perforations of the drum, present before the inception of *otitis externa*, require immediate evacuation with a small cotton-wool swab in the ear, for treatment by a specialist. In my opinion such men with old perforations that are never really dry are unfit for service in a hot, humid climate.

During Treatment.

1. Hæmorrhage may occur during treatment. In the early days these patients were evacuated, as the hæmorrhage occluded the drum and interfered with the toilet. However, with more experience and improved technique it has been found possible to complete the toilet in the field.

2. The pus and core from a furuncle may have to be eased into the lumen of the canal after the latter has been packed on the drum side of the furuncle, to absorb discharge which would otherwise drain medially.

3. Persistence of discharge may be due to several conditions. A seborrhœic patch may be present behind the pinna or under the lobe, often so small as to escape notice on rapid inspection. Whitfield's ointment is smeared on the affected area, and this is repeated twice a day until cure is achieved. This will control and clear up the otorrhœa, appropriate toilets being performed at the same time.

"Eczema" of the external auditory meatus may cause persisting discharge. This usually occurs in debilitated patients, and if the condition is spreading after twenty-four hours, such men are immediately evacuated from the regimental aid post. It is considered that men with this type of *otitis externa* are also unfit for service in hot, humid climates.

Bacillus pyocyaneus may cause the discharge to persist. This organism is readily recognized. Treatment by straight 0·5% to 2% acetic acid drops and gauze packs may be required; 10% argyrol drops and packs have proved effective also.

The discharge may be of the "coccal" type. This is a vague term, but suffices to describe a discharge similar to that seen in wet *otitis media*, which, of course, must be excluded. The infection seems to become resistant to the "drying solution". Many months ago sulphanilamide powder by insufflation yielded encouraging results, both curatively and incidentally as an abortive for *otitis externa* in its early stages. Today, however, owing to certain difficulties of sterilization, sulphanilamide powder is not used at regimental aid posts for external application. I therefore resorted to *Pigmentum Castellani*, mercurochrome and acriflavine (1/1,000 in *Spiritus Vini Methylatus*), and the results are satisfactory. The chief disadvantage is the masking effect of the erythema by the dyes. Then, owing to supply changes, resort was made to a 10% solution of argyrol, used during toilet and on a gauze strip left in for ten days. On removal of the strip the canal was found to be dry in all cases.

After Treatment.

After treatment, a recrudescence may be due to (i) incomplete initial treatment, interrupted by evacuations, schools, transfers *et cetera*, (ii) probable activation of a contaminant, (iii) neglect of prophylaxis. Such a flare-up is treated in the same way and often requires more intensive therapy, with frequent alternation of the antiseptics used.

Statistics.

The statistics that have been recorded are considered to reveal the effectiveness of this method of treatment.

The total number of patients treated was 304, and the total number of patients evacuated was ten; three were evacuated one year ago for hæmorrhage, two were evacuated for associated drum perforation dating back to childhood, two were evacuated in the acute œdematous stage—they were patients whom the exigencies of the service prevented from receiving treatment on the spot—and three were suffering from eczematous *otitis externa* acquired during the past four months.

There were three recrudescences. The average time for a recrudescence is five weeks; beyond this I considered the attack to be a fresh infection. As such it was considered to be a recurrence. There were nine such recurrences; one followed a subsequent attack of seborrhœa of the pinna eight weeks after the treatment of the *otitis externa*. The remaining eight recurrences were due to incorrect procedure while bathing, despite advice.

The average duration of treatment in the painless variety was two weeks, with two treatments at intervals of one week; the patient was on full duty all the time. In the painful type, relief of the acute symptoms required three to twelve hours' light duty. A satisfactory toilet was possible on the third day, and full duty was undertaken. The canal was much drier on the tenth day; full duty was done. The final *Spiritus Vini Methylatus* toilet was made fourteen and twenty-one days after the first treatment. When discharge persisted after the tenth day, four treatments were required twice a week for a further two weeks; full duty was done all the time.

Perhaps these periods, except that required for relief of acute symptoms, could be reduced by more frequent toilets; but this I doubt very much.

The average number of toilets required, taken over all cases, was four. The maximum number of toilets in one case of resistant otorrhœa was thirteen over a period of five weeks. This was one of the recrudescences. To date the condition has been controlled.

The clinical picture at the stage of first reporting over the past fourteen months is of interest. The period is divided into two sections, each of seven months, and figures are quoted to show that education of the soldier does produce results (Table I).

TABLE I.

Stage at which Lesion was Seen.	Period.	
	0 to 7 Months.	7 to 14 Months.
Early stage, painless and painful types	40%	90%
Advanced, œdematous and painful stage	60%	10%

Prophylaxis.

All subjects with old and recent drum perforation must at all costs prevent the entrance of water and dust into the ears. Periodic swabbing with *Spiritus Vini Methylatus* will help to keep them dry.

It is impossible to forbid swimming, as it is often the only means of ablution, and in any case many of the patients have not been swimming. It is recommended that after the ears have become wet at any time while swimming or washing or as a result of perspiration, they should be thoroughly dried and directed downwards, fluid being allowed to drain out.

Others have recommended the instilling of acriflavine (1/1,000) into the ears after swimming. It is thought that aqueous solutions in the ear at any time are to be deprecated. I am unable to express an opinion as to the efficacy of such a prophylactic measure. The wearing of cotton-wool swabs soaked in oil, *Oleum Ricini*, paraffin, "Vaseline" *et cetera*, inserted at least half an inch into each meatus, and tucked well behind the tragus, has proved invaluable. *Spiritus Vini Methylatus* drops may be spared for routine instillation into those ears which would appear to be ready victims of easily provoked recurrences. The protection of the ears from dust with dry wool plugs is also advisable.

Summary.

1. The clinical types of *otitis externa* and their recognition have been described.

2. A routine treatment designed for maximum speed and maximum effect of treatment has been outlined. It has been called a "radical treatment".

3. "Drill" and teamwork have been stressed.

4. The complications encountered and their treatment in the field have been mentioned.

5. A series of 304 cases to date has been quoted, and points of practical interest relating thereto have been amplified.

6. Practical and applicable prophylactic measures in the field have been discussed.

Acknowledgements.

I wish to express appreciation to Corporal H. R. Featherston for his explanatory sketches; to Corporal R. T. Durance for typing this article; to Warrant Officer Smith for the photographs; and to Sergeant N. J. McDonald, Australian Army Medical Corps, for his zeal in recording these statistics. I am indebted to Colonel W. H. Ward for his helpful criticism. I wish also to thank the Director-General of Medical Services for his permission to publish this article.

Reviews.

MONOGRAPHS ON NEUROLOGY AND MEDICAL PSYCHOLOGY.

THE École Libre des Hautes Études of Brazil has embarked on an ambitious scheme of producing works appealing to scholars and men of science. The first three of these have just been published by the Atlantica Editora, Rio de Janeiro, in the French language, and not, as might have been expected, in Portuguese, and deal with (*a*) inhibition and facilitation in the peripheral and central nervous systems, (*b*) perception and language, and (*c*) gesture and action, the last two being grouped together under the title "Studies in Medical Psychology". If any proof were wanting that Ibero-America has been forging to the front in the highest ranks of scholarship, these books would supply the requisite evidence. Formerly the inspiration in most Ibero-American publications was of German origin; in these volumes, if any preferential treatment is manifest it suggests French schools of thought. Paper and printing are excellent, but the indexing could be better; indeed a hasty reviewer looking to the index for help in determining where emphasis was most applied and where regrettable omissions detracted from the general excellence would blunder badly; the text must be read in its entirety to allow a true assessment to be made. Without any question these three volumes will take their place amongst the treatises which must be studied by those pursuing the topics mentioned, and the sponsors, publishers and authors are to be warmly congratulated.

The volume on inhibition and facilitation is pure physiology and the book is divided into two parts, 82 pages being devoted to facts and 25 to theories which might be better expressed as hypotheses. The analysis covers a wide range of investigations throughout the world of medicine and science, and though some bias is shown towards French work and the researches of the author, Miguel Ozorio de Almeida, each contributing country obtains fair mention; the English Sherrington receives the reverent treatment due to him and so does the Australian Eccles. The critical handling of the facts and of the many hypotheses put forward leads the author to the final conclusion that despite the very real progress made in the elucidation of the nature of inhibition and facilitation, the two problems remain unsolved and call for further and new research. Two criticisms may be offered. The drainage hypothesis of McDougall has had its day and is no longer taken seriously, but it was never quite so puerile as to deserve the "scholar's mate" of the author. A more serious matter is that an incomplete and unsatisfactory account is given of the hormonal doctrine. "At the present time there is not one single actual proof of the intervention of such substances in the phenomena of inhibition." We should like to hear the comments of the British school on such a sweeping statement.

In the volume on perception and language it is most refreshing to find a foreign author beginning his survey of the disorders of language with a glowing tribute to the pioneer and basic work of Hughlings Jackson and subsequently giving British investigators due notice and praise, though certain contributions of Henry Head are worthy of more appreciative treatment. This book will assuredly be classed amongst the important treatises dealing with disorders of speech. The author, André Ombredane, employs the term *"agnosie optique"*, which he has borrowed from Freud (1891) to describe the several types of *cécité* which have received many labels in neurological literature. This naturally leads to *"agnosie acoustique"*. Some 51 pages out of a total, including bibliography and index, of 189 are taken up with a lengthy description of a single case of "so-called pure alexia". An Italian of average intelligence was struck on the nape of the neck by an iron pipe wielded by an epileptic maniac and received injuries to the occipital cortex. The case is analysed in great detail and the diagnostic procedures employed are set out in the manner familiar to readers of neurology. It is interesting to note that the author used the clock test, but has failed to realize the significance of the jig-saw puzzle which in the hands of Head gave such illuminating evidence. The most brilliant part of the book is that dealing with congenital word blindness, a condition for which there are no less than twelve terms in the French language alone. This chapter is to be highly commended.

In dealing with gesture and action the same author, André Ombredane, devotes his second volume to the apraxias and a courageous attempt is made to disentangle the various types—equilibration, posture, locomotion, right and left orientation, manual and facial gesticulation and many others. The final chapter is a detailed investigation of two cases of apraxia. This second volume is really a continuation of the first, and some overlap in treatment is observable and has probably been unavoidable.

PYE'S SURGICAL HANDICRAFT.

THE appearance of the fourteenth edition of "Pye's Surgical Handicraft" is a reminder that new editions of this book have become almost a yearly occasion in medical publishing.[1] The continued evidence of a demand for this book is the best witness to its superlative worth. Under the energetic direction of Hamilton Bailey, a large team of specialists are producing editions each better and more complete than their predecessor.

The book has now developed far beyond its original aim as a guide to simple technical procedures in surgical diagnosis and therapy; and many of the chapters are in effect an excellent essay on the disorders of the part under consideration. One of the chief departures in the present edition has been the replacement where possible of descriptive matter in the text by pictorial representation of the procedure under discussion. This has allowed more freedom to convey the rationale of the advocated methods.

It is pleasing to note that minor criticisms of the previous edition have been noted, and adequate modifications made in the text. Within its scope, a better book than this cannot be imagined, and it is not surprising to see that a translation of it into Spanish is in preparation. It must find a place in the bookshelf of every practitioner and surgeon, and should be one of the first purchases of the newly fledged doctor.

[1] "L'Inhibition et la facilitation dans le système nerveux central et périphérique", par Miguel Ozorio de Almeida; 1944. Rio de Janeiro: Atlantica Editora. 9½" × 6¼", pp. 136.

[2] "Études de psychologie médicale: I. Perception et langage", par André Ombredane; 1944. Rio de Janeiro: Atlantica Editora. 9½" × 6¼", pp. 185.

[3] "Études de psychologie médicale: II. Geste et action", par André Ombredane; 1944. Rio de Janeiro: Atlantica Editora. 9½" × 6¼", pp. 129.

[1] "Pye's Surgical Handicraft: A Manual of Surgical Manipulations. Minor Surgery, and other Matters Connected with the Work of Surgical Dressers, House Surgeons and Practitioners", edited by Hamilton Bailey, F.R.C.S., England; Fourteenth Edition, fully revised; 1944. Bristol: John Wright and Sons Limited. 8½" × 5½", pp. 639, with many illustrations, some in colour. **Price: 25s. net.**

The Medical Journal of Australia

SATURDAY, FEBRUARY 17, 1945.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

HOUSEWIVES' DERMATITIS.

OCCUPATIONAL DERMATITIS is no rarity in the practice of a dermatologist. It may affect workers in a variety of industries, and is often so severe that the patient is quite unable to continue with his work. The first requisite in the treatment of such a patient is that he or she shall be so placed that the causative agent does not come into contact with the skin. Sometimes it may be necessary for the patient to discontinue his work, or on the other hand treatment may be given and protection devised at the same time so that further contact between the offending substance and the skin does not occur. Under ideal conditions the treatment will be preventive—no contact will take place and there will be no dermatitis. But dermatitis is no respecter of persons, of legal enactments or of social organization—its incidence is not confined to workers under industrial awards in factories, workshops or other spheres. All that is needed is the congress of an agent likely to cause dermatitis and a skin sensitive to it.

For some little time dermatologists have been seeing an increasing number of women who are affected by dermatitis of the hands caused by contact with an external irritant. These are women who have to do housework and possibly care for a number of children at the same time. That housewives are liable to be affected in this way is not new. No doubt more women are doing household chores than formerly. But, however that may be, before the manpower problem became acute a woman whose hands became affected by dermatitis was able to find someone who could relieve her of her work, or she was able to protect herself by wearing a pair of suitable rubber gloves, provided she did not wear them continuously for periods of such length that sweating of the hands would be induced. At the present time few women can find anyone to do their housework for them and fewer still can obtain suitable rubber gloves. A dermatologist in one of the capital cities of the Commonwealth reports that in spite of strong recommendations made by him for the supply of rubber gloves to these patients for household use, they have been supplied with gloves known as "surgical seconds". These gloves are far too fragile, and even with the greatest care do not last more than a week or two. The authorities have stated that the rubber shortage will not permit the issuing of proper household rubber gloves and that patients will have to be content with "surgical seconds". We understand that the suggestion was also made that cotton gloves should be worn over "surgical seconds". Apart from the fact that coupons are required for cotton gloves and that they in turn are scarce, the suggestion that a woman could do satisfactory work wearing two pairs of gloves is ridiculous. It appears that gloves of the type required by housewives are available for factory workers, and these no doubt are intended for the prevention, not the cure, of dermatitis. The present state of affairs would no doubt be described in the current terminology by the statement that housewives have a low priority in the matter of gloves, if indeed they have any priority at all. And if descriptions are to be given the plight of the woman who obtains no relief from her dermatitis is best stated as one of constant and concentrated misery.

If any serious consideration is given to this matter it must be concluded that the discrimination shown against housewives is based on essentially wrong ideas. The present war has shown to those who did not realize it before that society is made up of a number of units, each of which has its place. The family is the essential unit of society and the wife is the central figure of the family on which its cohesion and efficiency as a family unit depend. Apart from this idea, if we look on the man, the father of the family, as the breadwinner-in-chief, we cannot escape the conclusion that his wife who makes it possible for him to do efficient work is his partner in the business and that her health and efficiency must be safeguarded as well as his. If the family includes sons and daughters who are earning, the position of the mother is all the more important and she is all the more entitled to consideration. Emmy Freundlich, who is President of the International Guild of Cooperative Women, in the course of a plea for social security for housewives,[1] has pointed out that one reason why so little attention has been paid to housewives and so little has been done to give them social security, lies in the ambiguous nature of their status. The housewife is part of the family, she writes, of a limited social unit which looks after its own interests and is maintained by the earnings of the husband and children. In the general view the housewife does not perform her duties professionally, but as a service to her family. Mrs. Freundlich goes on to show that with the new factors which have arisen in the course of social development the common assumption that social security for the housewife should be the concern of the family, must be abandoned. While we do not propose to discuss this wider proposition at present, we wish to emphasize Mrs. Freundlich's conclusion that the wife's calling is in fact "an occupation". It is the occupation of social worker within the family, since the well-being of the individuals who form the family depends on her. There is every justification for acceptance of the statement that: "The housewife does not work for herself, nor for her family alone; her working capacity benefits the whole community." Returning to the smaller question of housewives' dermatitis, we may conclude that the condition is an occupa-

[1] *International Labour Review*, August, 1944.

tional disease in the same sense as any disease contracted by a worker during the course of his work and arising out of his work is an occupational disease. It should therefore receive the attention that it deserves and not be relegated to the "no priority" level. It is not as though a demand were being made for household gloves of rubber to be supplied to all housewives, as is done to factory workers in certain industries; the suggestion is that when a woman contracts an occupational dermatitis in the course of her household duties she shall, on presentation of a certificate from her attendant physician, be supplied with a pair of rubber gloves of decent quality that will stand up to a reasonable amount of work and not prejudice the efficiency of the work that has to be done. If the authorities cannot be made to see the reasonableness of this contention the matter should not be allowed to rest. It is a federal question and might well engage the attention of the Federal Council.

THE REPORT OF THE NEW SOUTH WALES COMMITTEE ON MATERNAL MORTALITY.

SOME weeks have now elapsed since the report of the Special Medical Committee on Maternal Mortality appointed by the Public Health Department of New South Wales was published in this journal. (See THE MEDICAL JOURNAL OF AUSTRALIA, December 30, 1944.) The report, which was the result of five years of investigation, should be regarded as something of more than passing interest. It must not be looked on as an account of so many maternal deaths caused in certain ways, but as a study in preventive medicine. The difference was illustrated by two of the Sydney newspapers. While one had a heading about the deaths of so many mothers in childbirth, another had a heading about the prevention of maternal deaths. Unless emphasis is laid on the preventive aspect the report will be shorn of much of its value. Those practitioners are fortunate who have available a committee such as the Special Medical Committee to inquire into maternal deaths and discuss with them the several stages of each case—the ante-natal period, the labour and the puerperium. To resent such inquiries would be foolish; to fail to profit by them would be worse. To those practising in places other than the metropolitan area of Sydney the report should have an added appeal, for they are in a position something like that of onlookers at a game, who, having occasionally to play it themselves, are thoroughly conversant with the rules that the players must observe.

The chief points that should attract the attention of practitioners studying the report were well emphasized by A. J. Gibson in the discussion that followed its presentation. The committee has been disturbed by the number of deaths from hæmorrhage and toxæmia which might have been prevented. Even a cursory reading of the report will show that this feeling is justified. Those who study the document will need to take every piece of information and discuss it from every point of view. Special attention should be riveted on the history, on early manifestations of toxæmia and on the third stage of labour. The statement that if maternal mortality is to be lessened doctors will have to take more care in obtaining the history of the patient should make every practitioner pause. It must be remembered here that the history must be obtained and that it must also be recorded. The early manifestations of toxæmia and their recognition were discussed in these columns a few months ago. In this matter the education of the public proceeds with the education of obstetric practitioners, though not, of course, at the same rate. The time will eventually come, however, when all pregnant women will expect to be seen regularly during pregnancy, to have their measurements taken, their urine examined, the blood pressures estimated and their weight recorded. When this happens it will mean that no medical practitioner will from pressure of work or for any other reason omit any detail of the so-called ante-natal examination. It will mean also that patients will be put to rest in bed and properly treated at the first sign of trouble. The third stage of labour is in some ways the most important of the three; its management may present problems that vary from case to case. It is in this stage of labour that judgement is called for most of all; it is here that the watchword of "care and no hurry" is needed; it is in this stage, on the other hand, that too long a delay may also spell disaster.

With the need for increased hospital beds the general practitioner trying to derive most benefit from this report need not be concerned. The present reference has been made in order to arouse interest in the committee's findings among practitioners in all parts of the country. We would suggest that at meetings of subdivisions of the Branches or of local medical associations this report should be dissected and discussed at round table conferences, each member expressing his views and drawing on his own experience. When such valuable material is available, it will be unfortunate if the greatest use is not made of it.

Current Comment.

PSYCHOLOGICAL INCONTINENCE IN CHILDREN.

ENURESIS is, as every general practitioner knows, far from uncommon. Even now it is, however, probable that it is sometimes treated with sedatives and anti-spasmodic drugs without due consideration of psychological factors. It is not necessary to be the complete Freudian to determine or to correct such factors, but it is possible that attention to the mental side of the condition might sometimes save a lot of belladonna. Less common but much more embarrassing is fæcal incontinence. The relationship of this state, productive of unhappiness in child and mother alike, with psychological problems forms the substance of a recent article by Edward Lehman.[1] He gives four long case histories which illustrate with great detail the mechanism of the genesis and continuance of this unfortunate habit. The children were all about six or seven years of age, which is rather surprising. It is certainly not surprising that at last they attended a pædiatric psychiatric clinic; fortunately the results were most satisfactory, and complete cure was obtained in each case. In one case there was the common story of the offspring of rather maladjusted parents being fiercely jealous of a younger sibling. It is interesting that during the recovery period violent hostility towards the baby was replaced by exaggerated care and protectiveness. The second case was that of a child whose mother had an obsession concerning the necessity for frequent and ample functioning of the bowels. It is not surprising that "*obstipatio paradoxa*", as one inveterate medical philologist has termed it, was produced in the child. The third child was the product of an unhappy and broken home, with phantasies of guilt quite unjustified by his repressed and misunderstood little life. The last child also was jealous

[1] *American Journal of Diseases of Children*, September, 1944.

of a younger child, was starved of intimate care and attention owing to parental illness, and was full of fears and perverted notions. In each case understanding and explanation helped to establish readjustment. Probably only a skilled psychiatrist could delve as deeply into the mental lives of these children as the case histories indicate; in fact some of these methods of psychotherapy might be compared with some of the more delicate operations of surgery, only safe in skilled hands. However, it is likely that understanding of the mechanisms at work would provide an adequate basis for successful treatment by any good physician experienced with children.

It appears from the discussion of the literature in this article that numbers of authors have coined names for the condition here described. Encopresis is the term favoured by Lehman. But it certainly is illuminating to read an extract from the literature forty years old in which one author supposes that illness may have affected the anal sphincter "even though digital examination failed to elicit any relaxation of this muscle". No doubt critics forty years hence will discover similar rationalizations in the writings of 1945; they seem to be an inescapable output of the human mind. But quite apart from such considerations, and starting from knowledge as it is today, surely it is even more necessary in a child than in an adult to ascertain the mental and social background when problems of behaviour arise. In this case the peculiar nature of the condition establishes it in the minds of parents as a misdemeanour, and the luckless child will certainly not benefit from this error, for error it usually is. In childhood there is more chance of repairing psychic damage, for little of the road is yet trodden, and perhaps the doctor can help here more than he thinks, even if he spoils or misunderstands his own children, as he possibly does.

Perhaps the confirmed Freudian may look knowing when a medical commentator turns from the consideration of an excretory form of behaviourism to sentiment, but no matter. Readers of Rudyard Kipling will recall that his own early experiences were described in "Baa baa black sheep", a story of embittered childhood, though he himself apparently emerged scatheless. But the small boy in the story celebrated his emancipation by wallowing in mud, confident in his new-found immunity, and claimed triumphantly: "It's all different now." "Not altogether", Kipling ends, "for when young lips have drunk deep of the bitter waters of Hate, Suspicion and Despair, all the Love in the world will not wholly take away that knowledge; though it may turn darkened eyes for a while to the light, and teach Faith where no Faith was."

HÆMOPTYSIS.

In the introductory part of an article on hæmoptysis in tuberculosis and a discussion on its differential diagnosis, L. J. Moorman[1] refers to the early belief that hæmoptysis was a causative factor rather than an effect of tuberculosis. It was not until early in the nineteenth century that Bayle stated the conclusion that "phthisis provoked the hæmoptysis". Moorman records a temporary reversion to the old belief even after the writings of Bayle and Laennec, and he adds that practitioners today have witnessed a tendency on the part of many to accept spitting of blood as being practically pathognomonic of tuberculosis. Such a view is, of course, inexcusable, especially in view of modern aids to diagnosis which have led to an understanding of hæmoptysis, its causes and its control.

The first care of the clinician called to a patient who is spitting blood, is to determine whether the condition is true hæmoptysis or whether the blood is coming from nose, mouth or pharynx. Moorman states that the differential diagnosis is not always easy and that occasionally all efforts will fail, at least for a time, even with the aid of a skilled rhino-laryngologist. Diagnosis will be most difficult when the bleeding is intermittent. Blood in the throat may be the result of post-nasal oozing, bleeding gums or rupture of varicose veins at the base of the tongue. In the text-book edited by Jackson and Coates the ground is well covered by the statement that before endoscopic examinations are made it is necessary to make careful examinations of the gums, nose, naso-pharynx, fauces, palate, lingual tonsil, and "in fact the entire mucosa of the air and food passages open to direct inspection". It should not be necessary to remark that general conditions such as gout, purpura, leuchæmia and so on must be borne in mind; even vicarious menstruation has been mentioned in this regard. Malingering must be mentioned. Moorman remarks that self-induced traumatic hæmoptysis is not uncommon in prisons and thinks that unstable or unscrupulous soldiers may be affected. Among the methods employed are gum sucking, cutting the gums or soft palate with a razor blade and traumatizing the posterior nares or the pharynx with some sharp instrument.

True hæmoptysis occurs, according to Moorman, in approximately 50% of all cases of pulmonary tuberculosis at some time during the course of the disease. It is in early stages most often due, as Beattie and Dickson aver, to softening and erosion of a peribronchial tuberculous nodule, forming a communication between a bronchus and a branch of the pulmonary artery (or possibly a tributary of the vein) or a bronchial vessel. The variation that may occur in the amount of hæmorrhage is thus easily understood. Moorman states that it may be a mere capillary oozing and on the other hand it may be moderately severe or even profuse. In the majority of cases a diagnosis can be made without much difficulty. Moorman makes a good point when he states that although it is important to make an early diagnosis when pulmonary tuberculosis is the cause, it is even more important in the acute pneumonias, bronchogenic carcinoma, lung abscess and bronchiectasis. These conditions may all give rise to hæmoptysis and therapy undertaken in their early stages may be successful, while delay may make treatment useless. In the differentiation of tuberculosis from non-tuberculous causes of hæmoptysis, it must be remembered that the tuberculosis causing hæmoptysis may not be demonstrable either by physical examination or by X-ray examination. The non-tuberculous causes of hæmoptysis are numerous. Moorman quotes an investigation by Jackson and Diamond, who reported on 436 cases of hæmoptysis from non-tuberculous causes. The most numerous conditions were as follows: bronchiectasis, 138 cases; primary carcinoma of the bronchus, 82; tracheobronchitis, 74; pulmonary abscess, 51; no evidence of disease, 34; non-suppurative pneumonitis, 15; suppurative pneumonitis, 11; adenoma of the bronchus, 11; secondary cancer of the lung, 6; and so on. He gives a long list of causes not mentioned by Jackson and Diamond, and in this list hydatid cyst is included. Practitioners in Australia will have to give hydatid cyst a much higher place on the list of causes of hæmoptysis than it can possibly claim in a non-hydatid country. Dew in his book on hydatid disease states that hæmoptysis is the most common symptom of pulmonary hydatid disease, being present in 60% of cases. Dew quotes the opinion of Thomas that probably all pulmonary hydatid cysts at some time during their course give rise to it. He explains that hæmoptysis is most common in cysts approaching the deeper part of the lung and is usually recurrent.

There is no need to attempt any detailed discussion of the non-tuberculous causes of hæmoptysis. The urgent need for prompt diagnosis is obvious, from the point of view of treatment, that it should be undertaken without delay, and from the patient's point of view, that his peace of mind may be restored, or at least that his confidence may be regained. Few events are so disturbing to a patient's morale as hæmoptysis even of moderate severity. Moorman reminds us that each of the conditions that commonly cause hæmoptysis has its own distinctive clinical pattern from which it seldom wholly strays. Careful study will generally reveal a clue which at least temporarily classifies the condition for further diagnostic investigation. When the clinician follows this clue he will pay particular attention to psychological measures that will reassure the patient. They are, as Moorman insists, more important than promiscuous dosing with sedatives and coagulants.

[1] *Annals of Internal Medicine*, September, 1944.

Abstracts from Medical Literature.

OPHTHALMOLOGY.

A Pathognomonic Sign of Retrobulbar Optic Neuritis.

R. A. GREEVES (*The Lancet*, June 3, 1944) states that besides the central scotoma, certain accessory signs and symptoms in the early stages of acute retrobulbar optic neuritis are easily recognized. These are: (i) partial dilatation of the pupil, which reacts to light, but does not hold the reaction; (ii) a sensation of pain when the eyeball is moved; (iii) tenderness of the globe to pressure. It is not commonly known that the tenderness is usually experienced only when pressure is applied to the upper surface of the eyeball, and that it is limited to a spot in the middle line corresponding roughly to the site of attachment of the superior rectus tendon. The author regards this strictly localized tenderness as pathognomonic of retrobulbar neuritis. It is present only in the early stages of the disease.

History of Iris Inclusion.

T. D. ALLEN (*American Journal of Ophthalmology*, September, 1944) traces the methods used to relieve suffering and to postpone blindness from glaucoma in the prescientific era, approximately 1800-1850, in the early scientific era from 1850-1900 and finally in the last forty years. In 1802 Whyte recommended scleral puncture in the ciliary region. Five years later paracentesis of the anterior chamber was used. Neither met with much success. In 1812 Adams noted that pain could be relieved and sometimes sight saved by what he called iridencleisis. This meant a broad needle incision with iridectomy or iris inclusion and was used in cases of secondary glaucoma. Critchett also tried ligation of portions of the iris. In 1857 von Graefe introduced broad iridectomy and stressed three points: (i) Make the incision deep in the angle. (ii) Make it broad. (iii) Tear the iris from the root. Two years later Coccius found that much better drainage occurred after a broad iridectomy if a piece of iris was left in the wound. Eserine was announced in 1876 and next year pilocarpine. De Wecker strongly opposed iris inclusion. In 1881 Walker noted that a sclerotomy did better if it included some uveal tissue, and later attempted to establish permanent fistulæ by pushing a flap of conjunctiva into the anterior chamber. A great step was taken at the turn of the century. Herbert, of the Indian Medical Service, found in a large number of cases that broad iridectomy failed to cure glaucoma and that better results followed iris prolapse. He operated on a series of 130 patients, slipping a Graefe knife under the conjunctiva and into the anterior chamber and drawing a small piece of iris into the wound, but under the conjunctiva. Relief of tension was certain and permanent. The Schiotz tonometer was presented to the profession in 1905. Lagrange began his sclerectomy in 1907. About the same time Holth after animal experiments, and after noting again that iris prolapse would cure glaucoma, whereas iridectomy would not, developed a technique very similar to Herbert's. The difference was that he used a fine keratome and did an iridectomy, including a half of the iris prolapse only in the wound and making sure of a thick conjunctival covering. Numerous slight modifications followed, none of any moment. Elliot condemned the whole idea roundly, as did Berens later. But the Herbert-Holth technique holds its own in certain cases and some surgeons use it in all.

Recession of the Trochlea.

W. L. HUGHES (*American Journal of Ophthalmology*, October, 1944) reports six cases of overaction of the superior oblique muscle. He states that it is sometimes associated with weakness of the inferior rectus in the other eye, sometimes not. The main sign is a "downshoot" of the eye when directed nasally comparable to the "upshoot" of the eye in overaction of the inferior oblique muscle. Head-tilting has also been noted. The surgical procedure begins with an incision down to the periosteum in the upper nasal angle of the orbit. The supratrochlear branch of the supraorbital nerve and the infratrochlear branch of the nasociliary nerve are usually severed. The periosteum is incised and stripped up posteriorly for 1·5 centimetres. In the region of the trochlea, 0·5 centimetre nasal to the supraorbital notch, the periosteum may be densely adherent to bone. At each end of the incision it is then cut from front to back, a flap attached posteriorly thus being formed and the trochlea at its forward edge being included. The flap is pushed back, the trochlea being carried with it. The skin incision is closed and a pressure pad is placed over the trochlear fossa, now empty, to aid retroplacement. The recession thus produced has a triple effect, one on the tendon, one on the muscle itself and a third on the direction of pull. The results claimed in eight cases (two reported previously) were: in five cases very good, in three 50% to 75% reduction in the "downshoot".

Cure of Epiphora.

J. L. WILLIAMS AND B. GOODWIN HILL (*The British Journal of Ophthalmology*, August, 1944) have evolved a simplified method for producing naso-lachrymal fistula. The medial tarsal ligament is cut and the sac is lifted from its bed in the fossa. The anterior lachrymal crest is chiselled off and a hole is made into the nose. A flap of the sac is then placed in this hole; it is kept in place by a rubber tube passed into the nose and out of the nares. During the sewing up the medial tarsal ligament is repaired. Stitches and tube are removed in seven days. The author has adopted this procedure in six cases, with a good result in five.

Orbital Tumours.

HARVEY JACKSON (*The British Journal of Ophthalmology*, September, 1944) states that the commonest and earliest symptom of an orbital tumour is unilateral proptosis, and that a difference of six millimetres or more between the prominences of the two eyes is sufficient to exclude a lesion other than tumour. Lowered visual acuity and diplopia often accompany proptosis, diplopia being often absent in optic nerve tumours. Pain is variable, often absent. With the ophthalmoscope papillitis may be discovered in optic nerve tumours; optic atrophy is common in other forms. In length of history a period of twelve to twenty years is not exceptional. Radiographic verification is forthcoming in a high percentage of cases owing to erosion or sclerosis of bone. As an optic nerve tumour can cause expansion of the foramen, so pressure or infiltration may cause irregular constriction. An optic foramen measuring less than 2·8 millimetres in any one of its diameters cannot contain a normal nerve. The foramen attains full adult dimensions at three years of age. Slight asymmetry is common. Of optic nerve tumours 80% are gliomata, 15% endotheliomata and only 4% fibromata. The usual pathological tests should be made. The operation of choice is the transcranial, wherein a frontal osteoplastic flap is reflected and the orbit is explored through its roof. The lateral or Krönlein approach is now generally discounted.

Strabismus.

I. I. SHURE (*Archives of Ophthalmology*, August, 1944) reports sixty-five cases of squint treated by operation. He finds that where recession only was carried out one millimetre of recession corrected 3° of deviation in the internal rectus muscle, but only 1·5° in the external. More satisfactory results were obtained with advancement *plus* recession than with recession alone. In every case overcorrection of at least 5° was secured at operation. The author describes his technique. The muscle being exposed, double armed sutures of 0000 catgut are passed through it near its tendon, one suture on either side. The tendon is then detached from the globe, the needles are passed through the sclera at the point of election and the gut is tied and cut. A silk runner closes the conjunctiva. In advancement similar sutures of catgut are passed thrice through both sides of the muscle at some distance back from the tendon, calculated according to the angle of the squint. Surplus muscle is then cut off. The globe being held by the stump of the attachment, the four needles are passed through the sclera just in front of the attachment and the two knots are tied and cut. Silk again closes the conjunctiva. Despite overcorrection at operation, in no case was over-correction noted after healing had occurred. A second operation was required in 10% of cases. Final results were: failure, 3%; eyes parallel without fusion, 37%; eyes parallel with fusion, 60%.

Chemotherapy and Corneal Healing.

G. K. SMELSER AND V. OZANICS (*American Journal of Ophthalmology*, October, 1944) have conducted experiments to determine whether certain much used chemical agents impair healing of the cornea. The method used was to produce a standard lesion in the eyes of pedigree rats. A transverse strip of cornea one millimetre in width was either stripped off or burnt and the resultant lesion was either used as a control or treated. Sulphathiazole, sulphadiazine, sulphacetamide and sulphapyrazine were used, all in powder and ointment form. Penicillin

was used in 25% standard dilution, that is, 500 units per cubic centimetre. To determine the effect on corneal epithelium the rate of mitosis was determined microscopically. It appears that, of the substances mentioned, sulphathiazole slows the healing process, sulphapyrazine is neutral, sulphadiazine, sulphacetamide and penicillin accelerate healing of abrasions. In burns, however, all of the above were detrimental, sulphathiazole and sulphacetamide inhibiting cell division to a greater extent than the others.

Glaucoma.

R. J. HESSBERG (*American Journal of Ophthalmology*, August, 1944) has treated with X rays of medium hard type patients suffering from glaucoma, due to thrombosis of the retinal veins and due to trauma. In all cases the tension fell and pain was relieved.

F. NELSON (*ibidem*) reports a case of retinal detachment after cataract extraction which persisted for several months, the eye being practically blind. Then followed acute glaucoma of short duration. Total reattachment occurred with restoration of function.

OTO-RHINO-LARYNGOLOGY.

Nasal Polypi.

M. B. COHEN (*Annals of Internal Medicine*, April, 1944) criticizes the work of A. D. Gillies on the histology of nasal polypi, published in this journal in 1940. Gillies, on the basis of finding eosinophile cells, divided polypi into two categories, allergic and infectious, numerically about equal. Cohen thinks that all were probably allergic, but that in half of them the tissues were removed for examination at too long an interval after the last contact with the allergen for eosinophile cells to be present. He finds that these tend to disappear and to be replaced by neutrophile cells and monocytes.

The Intrinsic Allergy Syndrome.

HENRY L. WILLIAMS (*Annals of Otology, Rhinology and Laryngology*, September, 1944) quotes many references to support the contention that apart from the antigen-antibody type of reaction seen typically in seasonal hay fever, there is a form of reaction, less dependent upon extraneous excitants, but evoked in sensitized tissues by physical, emotional and other stimuli. This is termed intrinsic allergy. Summing up the evidence of the various authorities whose works are discussed, the author concludes that it is suggestive of a fundamental, inherited, localized, cellular abnormality resulting in some change in cellular permeability and concomitant release of histamine when the deficient cell is affected by stimuli which obtain little or no response from the normal cell. He considers that many of the obscure symptoms encountered in oto-rhino-laryngological practice such as vague or widely distributed pains, vasomotor rhinitis and vertigo are due to the existence of the physical or intrinsic allergic state. The group of symptoms described as Sluder's syndrome the author considers to be of allergic rather than infective origin, and he describes the syndrome of intrinsic allergy as comprising four main divisions, as in Sluder's syndrome. These are vasomotor rhinitis, Ménière's syndrome, myalgia and the vasodilating pain syndrome, and they may occur singly or in combination. Based upon the demonstration of production of pain by traction upon or dilatation of the cranial arteries, but not from crushing or spasm of these vessels, the suggestion is made that vascular distension is the basis of many forms of headache. Experimentally it has been shown that such a vasodilating headache may be produced by injection of histamine. The author suggests that, as in migraine, there is often a vasospasm at first and this is soon followed by vaso-dilatation which produces sweating, lachrymation and variously distributed achings or pains. Three hundred and sixty-two cases drawn from the files of the Mayo clinic are reported upon. In each, painful symptoms about the head were present. Perennial vasomotor rhinitis was diagnosed in two hundred and fifty—alone in one hundred and seventy-three and associated with myalgia, Ménière's symptoms, or head pains in seventy-seven. It is this definite, fairly frequent association which has led the author to include the vasodilating pain syndrome and Ménière's syndrome in the syndrome of physical allergy. Changes in temperature and in barometric pressure are often described as exciting causes of symptoms in vasomotor rhinitis and in myalgia, but such definite extraneous physical factors are rarely recorded as excitants in the Ménière's syndrome or in the vasodilating pain syndrome except when associated with vasomotor rhinitis or myalgia. In treatment, histamine or nicotinic acid, or both, were tried with variable results. Each appears to have been of benefit alone in some cases. In others one succeeded where the other failed, and in a few instances benefit was obtained only when both substances were administered. Large doses of nicotinic acid, up to 200 milligrammes daily, were used. In the Ménière syndrome definite relief was obtained with the use of nicotinic acid. Nicotinic acid amide which does not produce the vasodilator effect of nicotinic acid failed to relieve any of the symptoms of this group.

Ménière's Syndrome.

MILES ATKINSON (*Archives of Otolaryngology*, August, 1944) states that experience subsequent to earlier reports continues to confirm his conclusions that the symptoms of Ménière's disease may be induced either by a vasoconstrictor mechanism or by a vasodilator reaction. The two groups can be distinguished by the form of reaction to an intradermal injection of histamine. The vaso-dilator group is responsive to treatment with increasing doses of histamine. The results of treatment in 110 cases of the vasoconstrictor type of Ménière's syndrome with nicotinic acid are now reported. Attacks of vertigo were relieved or greatly modified in 84% of cases, tinnitus was appreciably lessened in 40% and hearing was improved in 21%. Daily intravenous injection is first employed in severe attacks, a start being made with 25 to 35 milligrammes and each dose being increased by five milligrammes until 74 milligrammes are given. Additional oral administration of 50 milligrammes is given twice and thrice daily. Intramuscular injections of 50 to 150 milligrammes may soon be substituted for intravenous therapy. The patient may usually learn to give injections to himself. Treatment has to be maintained for long periods and perhaps indefinitely. Only a few patients can be kept well by oral treatment alone. A daily injection of 50 milligrammes at least is required in most cases. At intervals, too, threatened relapses may call for a further course of more intensive treatment. It is pointed out that nicotinic acid and not the nicotinic acid amide is essential for this therapy, for, although the amide possesses the vitamin properties of the acid, it is entirely devoid of the essential capillary dilator effect of nicotinic acid.

The Local Use of Sulphadiazine Solution, Radon, Tyrothricin and Penicillin in Otolaryngology.

S. J. CROWE (*Annals of Otology, Rhinology and Laryngology*, June, 1944) reports that for the prevention of ear and sinus complications of acute colds, nasal drops of 2·5% sulphadiazine in ethanolamine have been used ten to twelve times daily, with better results, in a series of 1,500 cases, than in any other form of treatment. In chronic nasopharyngitis, too, the treatment has been found to be of value if maintained for a month or longer. The real problem in chronic cases is to get rid of hyperplastic lymphoid tissue. Radium or radon treatment has been found most effective for this. At the Johns Hopkins Hospital approximately 125 patients are treated by radiation each month. With a special applicator with a long handle the radium or radon is passed through the nose to the nasopharynx: 800 to 1,000 millicuries of radon with filtration of one millimetre of brass, or 50 milligrammes of radium sulphate in a "Monel" metal container with walls 0·3 millimetre thick, are employed. The average time of each treatment with the radium container is 6·6 minutes. In a children's clinic hearing has been found to improve by as much as 40 decibels in many cases. Chronic discharging ears have been helped to dry up, and recurrent attacks of acute otitis have been stopped. The tendency to colds has been greatly reduced. Operation is still recommended for greatly enlarged adenoids and for infected tonsils. Tyrothrycin has been found in many ways to be superior to either penicillin or sulphonamide powder for local application. When brought into contact with a sensitive organism, it kills it almost instantaneously. Penicillin and sulphonamides on the other hand are bacteriostatic. Tyrothricin is insoluble in water and has poor penetrating powers. It is toxic if injected. Tyrothricin therefore is of greatest use for local application to accessible acute inflammations, such as to the ear after paracentesis, or to an acutely infected antrum, or to a sinus at operation. Penicillin penetrates the tissues and thus is also of value in chronic infections, provided the concentration is maintained. An essential for the successful treatment of any infections with local chemotherapy is identification of the organisms and determination of their sensitivity to the drug to be employed.

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on November 30, 1944, at the Robert H. Todd Assembly Hall, British Medical Association House, 135, Macquarie Street, Sydney, DR. G. C. WILLCOCKS, the President, in the chair.

Cancer of the Prostate.

DR. COLIN EDWARDS read a paper entitled "Hormonal Treatment of Carcinoma of the Prostate Gland" (see page 165).

DR. H. J. HAM read a paper entitled "Carcinoma of the Prostate" (see page 168).

DR. R. G. S. HARRIS thanked the speakers for their papers. He said that some amazing results had been obtained with stilbœstrol; intolerable pain was relieved in comparatively few hours. Dr. Harris referred to a patient who had very severe sciatica; eighteen months earlier he had undergone endoscopic resection, and the tissue removed was found on pathological examination to be carcinomatous. Orchidectomy was performed by the subcapsular method, and within twelve hours the patient was able to move about in bed, and four days later he was walking about. At the time of the meeting the patient, although aged over seventy years, was still working in a munition factory. Dr. Harris considered this result extraordinary; he said that the patient had a large, irregular, stony hard prostate. The results in other cases had not been so favourable. Dr. Harris said that Dr. Edwards had touched only lightly on diagnosis; in general diagnosis was comparatively simple. The presence of hardness, fixation and irregularity of the tumour and urinary discomfort left little room for doubt. With regard to symptomatology, it was noticeable that from the time of onset of symptoms rapid progress and increase in severity occurred. As an aid to diagnosis in doubtful cases, Dr. Edwards had mentioned the serum acid phosphatase estimation; both in diagnosis and as an aid to prognosis the test would be extremely useful. At the present time the difficulties of having the test performed were great. There were in Sydney only two large centres where it could be made, and their results were not absolutely reliable. However, if the test was performed and a high reading was obtained, and if the result of the test agreed with the clinical findings, the diagnosis was certain. If a low reading was obtained and yet clinical signs were present, the result of the test should be treated with caution. When obstructive symptoms were present, a large number of patients responded to the administration of stilbœstrol and no surgical treatment was required. Those who did not respond should have early the benefit of endoscopic resection, which was the treatment of choice. In cases in which the trigone of the bladder was involved, response to venesection was frequently not good; suprapubic cystotomy could give great relief. A tube had been introduced by the late S. Harry Harris, resembling a tracheotomy tube, and from the insertion of such a tube patients obtained great relief and comfort. The tube could be quite easily managed by the patient, taken out and cleaned. In conclusion, Dr. Harris supported Dr. Edwards's remarks concerning the need for caution in claiming cures in cancer of the prostate; no cures could yet be claimed for endocrine therapy.

DR. P. D. BRADDON also thanked the speakers for their papers. He said that he had had no experience in the treatment of cancer of the prostate, but was intensely interested in the progress that had been made and in the value of the synthetic œstrogens. Dr. Braddon called the attention of those present to an article by A. Haddow, J. Watkinson, E. Paterson and P. C. Koller, entitled "Influence of Synthetic Œstrogens on Advanced Malignant Disease", which had appeared in the *British Medical Journal* of September 23, 1944. Dr. Braddon said he was glad that Dr. Edwards made no claim to cure; claims to cure were likely only to cause confusion in the minds of medical practitioners. Referring to the implantation of radium and radon seeds, Dr. Braddon said that it was technically impossible to do such a thing in an organ so difficult of access as the prostate and obtain homogeneous doses. The palliation that could be achieved with treatment by synthetic œstrogens in a number of favourable cases had to be seen to be believed.

DR. LEIGH PHILLIPS expressed his appreciation of the papers. He said that he had had experience of one case. A man had gone to the surgical out-patient department of a hospital two years earlier; he had had a few misadventures on the way, and arrived with a diagnosis of fæcal incontinence; the fæcal incontinence was obvious. Examination with a finger in the rectum soon disclosed an enormous mass filling the rectum; it was impossible to tell from where the tumour arose. X-ray examination revealed extensive carcinomatosis. The patient was first given a bismuth and opium mixture, to consolidate the fæces and give him comfort. Stilbœstrol was then administered. Although his recovery at first was not dramatic, he had made continuous progress over the intervening period of two years; he had gained over a stone in weight, and the mass was so much reduced in size that it could be recognized as prostatic in origin. His general condition was much improved, and he was able to control his bowels. So far there was no sign of general regression. Dr. Phillips said that the most spectacular part of the story was the X-ray film, which demonstrated definite regeneration of bone; this had only rarely been pointed out previously. The patient had been receiving six or seven milligrammes of stilbœstrol per day by mouth.

DR. KEITH KIRKLAND also thanked the readers of the papers. He said that he was glad it had been stressed by each speaker that the hormonal approach could not as yet be regarded in any way as a cure for cancer of the prostate. That was borne out by every writer on the subject. Nesbitt, of Ann Arbour, had published a second year review of 75 cases, in which he stated that he considered that no patient was free of cancer; all his patients had been treated by orchidectomy, by stilbœstrol administration, or by both methods. Randall had reported five cases in which the patients had been under observation for seven, eight and nine years respectively; one still survived six and a half years after orchidectomy and still had evidence of cancer. Dr. Kirkland said that he did not propose to enumerate cases in which treatment had been dramatically successful; such cases would be reassuring, were it not for the other cases in which there was no response to orchidectomy or stilbœstrol administration or both. It was a mystery why some patients completely failed to respond, or else responded for a short period and then relapsed. Apparently in both patients of this type and patients who responded to treatment the cancer was the same in the first place, the human organism was the same; yet some patients failed rapidly, and some were successfully treated for a time and then failed. Dr. Kirkland said that at the present time it was safest to consider all cases as failures and to divide them into "good" cases and "bad" cases. Pursuing the hormonal approach, Dr. Kirkland said that four factors had to be considered. (i) The first was the possibility that all the androgenic supply was not removed, so that ultimately failure resulted from the remaining supply. (ii) The second was the possibility that androgen might be only one of the influences at work, a fairly potent influence, so that in favourable cases its removal made treatment successful. (iii) The third was the possibility that as time went on the cancer cell adapted itself to the new hormonal environment. (iv) The fourth was the conception that the human organism might evolve to a new hormonal balance not damaging to cancer cells. In unfavourable cases, it would appear that the cancer cell had achieved almost complete independence of androgenic influence, so that removal of androgens had no effect on it. Dr. Kirkland said that he had noticed that when one operated on a testicle to remove the testicular substance inside the *tunica albuginea*, if the testicle was atrophic, small, soft and flabby, and if the tubules were not healthy and well supplied with blood, the patient did not respond to orchidectomy. On the question of prognosis, Dr. Kirkland said he agreed that it was valuable to have a knowledge of the serum acid phosphatase, but he had had no opportunity of assessing the value. Baringer, at the Memorial Hospital, reported that in a series of cases in which metastases were present, the serum acid phosphatase was raised in 67%; the figures were lower within a fortnight in any case in which there was an improvement in the clinical course. The response to the test could not be taken as an absolute indication, but it was a useful guide. Dr. Kirkland said that he was in ignorance as to the way in which the androgen content of the blood could be assessed, or whether there was any test to estimate the response to stilbœstrol treatment. In the matter of the use of stilbœstrol or the removal of the testicular supply of androgens, the question arose as to when that trump card should be played. He had recently seen a statement by Nesbitt, in which the latter expressed the opinion that any patient who was not complaining of great pain or who was not having a bad time from his growth should not be submitted to these methods of treatment, because at that stage it had to be remembered

that neither method was curative, nor were both in combination. They gave relief that varied a great deal. They relieved pain due to metastases and should be used when the well-being of the patient was suffering. Dr. Kirkland thought it wise to wait until it was necessary to relieve symptoms before applying those methods of treatment. If it was possible to say that the disease could be cured, then the earlier treatment was instituted, the better. As it was possible to palliate the condition, not to cure it, and as only the more severe symptoms could be relieved, the treatment should be withheld until its use was inevitable.

DR. C. F. A. DE MONCHAUX said that he had appreciated the papers. The speakers had well covered the ground for non-surgical treatment of cancer of the prostate. The radiotherapeutic side had progressed to a certain point, but had got no further. The treatment outlined in Dr. Edwards's paper offered more promise. The most interesting advances in treatment made within the last ten years were those dealing with endocrine therapy. Perhaps one day all forms of malignant disease would be treated with endocrine preparations; at the present time, the ovaries were irradiated to relieve carcinoma of the breast. Such advances were interesting; they supported the idea that he had entertained for some time—that the important factor in the ætiology of cancer was the endocrine factor. Referring to the treatment of metastases, Dr. de Monchaux said that he had been interested to hear Dr. Edwards say that if androgenic or endocrine treatment was used, regeneration of bone occurred. That opened up a wide field of speculation. It was known that in the treatment of metastases bone regeneration did occur. It was also known that some metastases were osteoblastic in type, others osteoclastic. Dr. de Monchaux wondered what exactly a metastasis was. That question bore a resemblance to the question in the old song as to where the flies went in the winter time. It might also be asked where the lime went in cancer (in a bone metastasis). Lime obviously disappeared in osteoclastic metastases. The bone was regenerated, osteoblastosis was produced. Dr. Edwards had said that the regenerated appearance of bone in X-ray films was not due to the deposition of calcium, but to granulomatous tissue; Dr. de Monchaux disagreed. He believed that the second most important point in the causation of cancer was a profound disturbance of the calcium metabolism of the body. He referred to a case of his own. The patient was a woman with extensive metastases from a cancer of the breast; she literally had one foot in the grave when first she came into his care. He gave her calcium gluconate; that was three years prior to the meeting, and although she had had no other treatment, she had only just lately begun to go downhill again. It seemed that the concept of some profound disturbance of calcium metabolism was justified. Dr. de Monchaux thought that these two lines of investigation—that of the endocrine factor and that of the calcium coefficient—might be very important in the ultimate elucidation of the problem of carcinogenesis.

DR. R. J. SILVERTON said that he had enjoyed the papers. He had been closely associated with Dr. Ham and Dr. Edwards for many years. Dr. Silverton said that at the present time all interest had been lost in radiotherapeutic measures and was centred on the new methods. He thought it an amazing thing that control or alteration of an hormonic system should cause an actual change in a cancer cell. Anything that could palliate the condition was a welcome gift to the urologist; but from the general point of view that change was the amazing result. As far as he knew, it was the most significant thing that had happened in the whole history of the cancer problem. It pointed the way to research workers of the future to inquire what were the normal physiological activators; by suppressing them it was possible to cause degeneration of the tissue from which the cancer cells had arisen. Dr. Silverton had thought that there were three phases to the problem. (i) At first retention of urine was relieved by suprapubic cystostomy; then endoscopic resection was introduced. (ii) It was found that the majority of patients could be relieved by endoscopic resection. (iii) Androgen therapy was brought forward, the object being either to neutralize the androgens or to remove them at their source. The obvious method was to remove the contents of the *tunica albuginea*. The operation was slight, and the cosmetic damage was not important; patients did not mind the cosmetic defect or the loss of sexual power. Dr. Silverton said that at first he had given œstrogens only, and then he had used the two methods. He did not remember what his figures were. An American writer had given a mortality rate of about 30% in the first two and a half years of treatment. Dr. Silverton said that his own mortality rate had been much lower. He agreed that many unknown factors were as yet involved, such as habituation of the cancer cells to the changed endocrine environment; but at the same time he saw no reason for delay in treatment. He thought that as a beginning a subcapsular orchidectomy should be performed. No cure could be claimed; it was possible only to watch the patients and think of the problems that might arise. The effect of orchidectomy was smooth and permanent, but he had never claimed that the procedure produced a cure. As soon as carcinoma was diagnosed, he removed the contents of the *tunica albuginea* and gave the patient into the buttock ten milligrammes of stilbœstrol per day for the first week or two; that was followed with a considerably smaller dosage given by mouth. Most patients were receiving one milligramme per day. A number of patients were coming back to see him; the majority had gained in weight and were of good colour, and in many cases the prostate gland could not be palpated at all *per rectum*—all that could be felt was the mucosa of the rectum. In other cases it felt like a thin double leaf. In other cases again a certain thickness or firmness could be palpated. Three patients out of about thirty had died; the rest were well, felt fairly well and could work. The patients appeared to be divided into two groups, one of good colour and robust, the other pale. However, one gained the impression that the carcinomatous process was going on somewhere in the body. The crux of the situation was early diagnosis. A help in this matter was his criterion of non-restriction of the urinary stream—a stream that could be projected more than one foot beyond the feet and was wider than the thickness of a wooden match.

DR. M. S. S. EARLAM also thanked those who had read the papers. He said that he wished to refer to one point, a matter of which he had no practical experience, and that was the serum acid phosphatase estimation. Dr. Edwards had said that it had great value in the diagnosis of doubtful cases; Dr. Earlam thought he would prefer a biopsy. He asked Dr. Edwards if he could state whether the information given by the acid serum phosphatase estimation was much more help in prognosis than the patient's clinical reaction to treatment.

Dr. Edwards, in reply to Dr. Earlam, said that he had misunderstood him. Dr. Edwards had said that the acid serum phosphatase estimation was valuable only when the figure was high; a negative result was of no use whatever in diagnosis. Dr. de Monchaux had referred to bone regeneration. Dr. Edwards said that he had obviously not made himself clear; the collapsed vertebra shown in several X-ray films of the same patient remained collapsed. Dr. Edwards asked whether Dr. de Monchaux had seen calcium in the centre of such apparently cystic areas; Dr. Edwards himself had not. Dr. Edwards had been interested in the films shown by Dr. Phillips, and he thanked all the people who had discussed his paper. Dr. Kirkland had raised an interesting point, the question of when androgenic treatment should be started; Dr. Edwards had purposely avoided it, as he thought it would take too long to discuss. However, that was one occasion on which the acid serum phosphatase estimation was of great value—treatment should be begun when the figure began to rise. Dr. Edwards had tried to get into touch with his former patients, and had managed to get together a series of 80; 20% of them wrote that they were very well and would not consider any more treatment. One man, in 1932, at the age of seventy-two years, had had radium needles implanted by Dr. Silverton, and had had a radium burn; at the time of the meeting he was aged eighty-four years, and was having a little difficulty in emptying his bowel, but had no clinical evidence of growth. Dr. Edwards thought that if radium could be implanted before the tumour metastasized, it was possible that some good result might be achieved; but the treatment was so harsh that it was necessary to be careful. When radium treatment was formerly used, before the introduction of androgen therapy, it was found that the treatment diminished, not increased, the expectation of life. Referring again to Dr. Kirkland's remarks, Dr. Edwards said that the measurement of androgens in the blood was impossible, but they could be measured in the urine. It was a tedious business. At the present time he was selecting for it those patients who had relapsed, and he hoped at some time in the future to be able to report on whether the androgen in the urine increased.

Dr. Ham said that he had been interested in Dr. Edwards's statement that there was actually a place for the implantation of radium in a few cases. The old way of implanting long needles, which had been used some years earlier, was very difficult, and that explained the burn. There were, however, some patients who could benefit from radium implantation. The newer method of gold seed implantation did not

entail much discomfort for the patient. There was still a field for the newer methods of X-ray treatment, and the results would be known in a few years. Certainly some of the results obtained by the newer methods seemed to indicate that a cure was produced. However, in such matters it was necessary to keep an open mind. Some patients had lived for nine years, and subsequently some residual carcinoma had actually been found after their death. There was no need now to use X-ray therapy as it had been used in the past; but there were some cases in which it should be used to ease pain—for example, when patients did not respond to stilbestrol.

Dr. Willcocks, from the chair, thanked the readers of the papers and those who had taken part in the discussion. He said that he had found the evening interesting; of course, the subject was intensely interesting. The use of hormonal preparations to alleviate cancer of the prostate was an epochal discovery. Dr. de Monchaux's views with regard to the further advances that were likely to be made in the use of such preparations were interesting. Dr. Willcocks said that so far as he knew, androgens could not be measured in the blood stream; that was one of the difficulties—it was impossible to measure them, and no one knew how they worked. It was unknown how such preparations worked when given to women to alleviate menopausal symptoms. There were a variety of types of prostate. Even in his practice a few people who clung to their physician consulted him; one very pale patient had had almost continuous albuminuria for twelve months, whilst others did not have it at all. Dr. Willcocks said that Dr. Edwards was wise to have adopted a cautious tone about the prospects of cure. Seven or eight years earlier, one of Dr. Willcocks's patients had been investigated for carcinoma of the prostate, but none was discovered; after he had taken some potassium citrate mixture he had noticed a vast improvement in his urinary stream. The results of treatment had to be viewed with conservatism; endocrine substances had a pronounced effect, and still more improvement in methods of use could be expected. In conclusion Dr. Willcocks thanked the speakers for sensibly narrowing the scope of their papers.

Medical Societies.

VICTORIAN MEDICAL BENEVOLENT ASSOCIATION.

THE annual meeting (deferred) of the Victorian Medical Benevolent Association was held at the Medical Society Building, Albert Street, Melbourne, on November 22, 1944, Dr. J. P. Major, the President, in the chair.

Annual Report.

The report presented by the secretary made feeling reference to the loss sustained by the death of Dr. R. H. Fetherston, the President, during the year. Appended was a circular letter sent to all members commending a method by which it was believed the permanent fund of the Association might be continuously augmented and so become a strong foundation for the increasing work of the Association during the post-war years. Dr. Major referred to the proved value of this method in South Africa and expressed the belief that similar results might be expected in Australia. The report was adopted.

Financial Statement.

The Honorary Treasurer, Dr. L. Mitchell, presented the balance sheet for the year 1943, which was adopted. The balance sheet showed:

RECEIPTS.	£	s.	d.
By Subscriptions ..	224	10	9
,, Special Donations	6	11	0
,, Interest on Investments ..	336	0	8
	£567	2	5

EXPENDITURE.	£	s.	d.
Auditors' Fee ..	4	4	0
Gratuity	4	4	0
Bank Fees		10	0
Payments for Relief	400	10	0
	£408	8	0

Surplus of receipts over expenditure, £158 14s. 5d. Investments of permanent fund amounted to £9,040.

Election of Office-Bearers.

The following officers were elected:
President: Dr. J. P. Major.
Honorary Secretary: Dr. E. L. Gault.
Honorary Treasurer: Dr. L. Mitchell.
Members of Committee: Dr. Fay Maclure, Dr. W. Newton, Dr. C. H. Dickson, Dr. A. P. Derham, Dr. A. R. White.

National Emergency Measures.

THE RATIONING OF EGGS.

THE following letter and statement have been received from the Deputy Director of the Rationing Commission, Sydney.

COMMONWEALTH OF AUSTRALIA.

Rationing Commission,
Dymock's Building,
426 George Street,
Sydney,
7th February, 1945.

Egg Priority Distribution Scheme.

Dear Sir:

As you have doubtless already noted in the daily Press, an Egg Priority Scheme will operate as from 26th February, 1945, within certain defined areas in N.S.W. and will have restricted application. Provision is being made for the particular requirements of invalids and the basis of the allowances to be made has been formulated by the Special Diets Committee of the National Health and Medical Research Council. For your guidance the undermentioned details of the scheme are set out:

(1) *Area within which Scheme will Operate.*—County Cumberland—bounded on the north by the Hawkesbury River, on the west by a line roughly through Windsor, St. Mary's, Penrith area, south-west by Camden and south by a line roughly joining the coast at Austinmer. County Northumberland—bounded on the north roughly by Maitland, on the west by the McDonald River and the south by the Hawkesbury River. Lithgow—the municipality. Parish of Wollongong—the city of Wollongong and the town of Port Kembla.

It is asked, therefore, that under no circumstances should certificates be given to people not resident within the above stated areas.

(2) *Priorities.*—Egg priorities will be available for (i) expectant and nursing mothers, (ii) children aged six months to five years, (iii) invalids suffering from certain specified illnesses. In the case of (iii) a certificate by a doctor is required before a special Registration Card is issued, and the particular ailments, recognized for a priority issue, are set out on the accompanying documents.

(3) *Procedure in the Case of an Invalid.*—Attached hereto are specimen application forms for invalids. It will be noted that whilst Part A is required to be completed by the applicant, Part B is required to be completed by the medical practitioner. Applicants may obtain forms at this office and should surrender such form to you for completion of Part B above referred to. The applicant should then post the form to this office, whereupon, and assuming that the application is in order, a Registration Card will be issued to the addressee. The "Registration Card", when received by the applicant, should be furnished to his or her grocer and will be the entitlement document for a regular weekly allowance of eggs. It will be noted, under Categories A and B (see accompanying form), that the initial registration is for four months only, renewable on presentation of further medical certificate for a period not exceeding three months, and that in the case of Category C the initial period of registration is for one month, renewable for a period of one month in a similar manner.

(4) *Egg Supplies.*—Notwithstanding that registered persons will have first call on the eggs available in shops, the demands of the priority groups will not exhaust the supplies which will be marketed. There will be eggs available for retail sale to non-priority customers. Supplies will, however, be guaranteed to the priority groups. Otherwise sales of eggs surplus to priority customers will be in the hands of the storekeeper.

(5) *Eligibility.*—You are specially requested to note that the only invalids eligible under this scheme are those whose ailments are set out in the categories above referred to. It will be noted that neither tuberculosis nor diabetes is included in the list of ailments, but for both of these conditions supplementary meat coupons are available. Accordingly it is particularly requested that, in order to avoid disappointment, certificates be not issued except to those invalids whose special requirements are covered by the scheme. In order to facilitate administration it is requested that medical certificates should not be given except on the appropriate form (MED.14).

If you require further information, please communicate with this office.

Yours faithfully,

W. B. HUDSON,
Deputy Director.

COMMONWEALTH DEPARTMENT OF HEALTH.

Provision of Eggs for Invalids.

The following statement is issued for the special information of the medical profession and the public by the Director-General of Health after consultation with the Controller-General of Food and the Director of Rationing.

The Food Rationing (Special Diets) Committee of the National Health and Medical Research Council has reviewed the illnesses for which a priority supply of eggs should be reserved and has furnished certain recommendations that have been adopted and incorporated in the following instructions:

1. In areas in which the scheme for priority distribution of eggs applies, persons suffering from the following complaints are entitled to priority supplies of eggs in accordance with the following table:

COMPLAINT.	MAXIMUM ALLOWANCE.	MAXIMUM PERIOD OF REGISTRATION.
Category A. Persons suffering from gastric, duodenal or anastomotic ulcer, or chronic dyspepsia, or persons who have undergone operation on the stomach, duodenum or small intestine. (Note: Appendicectomy is not included.)	12 eggs per week.	Four months. Renewable for additional period of three months on presentation of further medical certificate.
Category B. Persons suffering from any disease or injury to the mouth, throat or gullet, or organic nervous disorder, causing interference with swallowing.	12 eggs per week.	Four months. Renewable for additional period of three months on presentation of further medical certificate.
Category C. Cases of typhoid fever or paratyphoid fever whilst under treatment and other prolonged fevers (*i.e.*, febrile illness exceeding 96 hours' duration).	12 eggs per week.	One month. Renewable for additional period of one month on presentation of further medical certificate.

NOTE.—As special arrangements have been made for the supply of eggs to hospitals, patients in hospital will not be entitled to receive further priority supplies under this scheme.

2. Application forms are obtainable from the Deputy Director of Rationing and contain a certificate which must be completed by a legally qualified medical practitioner. When completed, application forms are to be forwarded to the Deputy Director of Rationing, who will post the necessary priority registration slip to the applicant. The applicant should then register with his egg supplier by lodging the registration slip with him.

3. *Special Advice to Members of the Medical Profession.*—(*a*) The Food Rationing (Special Diets) Committee considers that during the period in which the scheme for the priority distribution of eggs operates, patients suffering from the diseases listed above are the only ones for whom eggs should be provided. *It will be observed that provision has not been made for persons suffering from the short-time febrile illnesses.*

(*b*) Medical practitioners are particularly requested to state in the certificate the category in which the complaint comes as well as the complaint from which the patient is suffering.

It is pointed out that *maximum* allowance is 12 eggs, and where fewer eggs are required the medical practitioner should specify 3, 6 or 9 eggs per week.

J. H. L. CUMPSTON, M.D.,
Director-General of Health.

Correspondence.

THE QUEENSLAND UNIVERSITY MEDICAL COURSE.

SIR: I should like to comment on the criticism of the Queensland University medical course contained in the address to the Queensland Branch by Dr. Horn and published in the journal of January 27.

Surely those who studied for years the needs of a faculty of medicine, who planned to found it and took part in founding it, who have been members of the Faculty since its foundation, who have been giving medical teaching inside and outside the Faculty for over twenty years, who have been writing about medical and other sciences for upwards of thirty years and who have made significant contributions to knowledge in the medical and scientific Press, are better qualified to plan and run courses than those who have done none of these things. Only they are accumulating the experience of the ten years since the Faculty was founded to analyse, reform and perfect the curriculum. Advice to them is merely gratuitous if it does not come from an authentic and authoritative source.

Most of Dr. Horn's criticisms are stale student gossip and were out of date before they were written.

His suggestion that the present form of private practice can give an adequate medical service to the people at once destroys any slight value the address might possibly have possessed.

Yours, etc.,

J. V. DUHIG.

Ballow Chambers,
Wickham Terrace,
Brisbane, B17.
February 4, 1945.

THE REPATRIATION DEPARTMENT AND EX-SERVICE PERSONNEL.

SIR: I regret, Mr. Editor, that you and I should have incurred the displeasure of the Principal Medical Officer of the Repatriation Commission. I am glad to learn that the department does not insist on the demonstration of tubercle bacilli before making a diagnosis of tuberculosis. I am, however, still rather in the dark as to the circumstances that warrant a diagnosis of non-tuberculous pleurisy. I have seen many cases of so-called "non-tuberculous pleurisy" that have been followed by pulmonary tuberculosis. In the case of a "primary" pleural effusion, there is only one safe assumption, namely, that the effusion is tuberculous in origin, unless it can be proved not to be so. Failure to react to a Mantoux test is strong evidence against tuberculosis; failure to demonstrate tubercle bacilli is much weaker evidence against it. In cases which react to a Mantoux test, but in which no tubercle bacilli can be demonstrated, errors may be made in assuming that effusions are tuberculous in origin. But many more errors will be made in assuming that they are non-tuberculous. I appreciate the difficulties from the pensions aspect, and I think they might be overcome by making a diagnosis such as "pleurisy—tuberculosis not proved" or "pleurisy—aetiology unknown". These would be much safer diagnoses than "non-tuberculous pleurisy". From the purely medical point of view, it is unwise to look upon an effusion as non-tuberculous, except upon the strongest evidence. Neglect of proper treatment at that stage may result in the development of a post-pleuritic pulmonary tuberculosis, a matter of much more serious import to the patient.

Yours, etc.,

D. R. W. COWAN.

163, North Terrace,
Adelaide,
February 3, 1945.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 23, of February 1, 1945.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Ante-dating Seniority.—The seniority of Temporary Surgeon Lieutenant (D) Clarence Athol Annis Lyons is ante-dated to 22nd May, 1943.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Appointments.—Norman Heaydon Rutledge and John Wallis Hornbrook are appointed Surgeon Lieutenants, dated 12th December, 1944, and 20th December, 1944, respectively.

Promotion.—Acting Surgeon Lieutenant-Commander Harry Douglas Raffan is promoted to the rank of Surgeon Lieutenant-Commander, dated 1st January, 1945.

Post-Graduate Work.

DIPLOMA COURSES IN SYDNEY.

THE New South Wales Post-Graduate Committee in Medicine announces that courses for the Diploma in Anæsthesia and the Diploma in Radiology will begin on March 12, 1945. The course for the Diploma in Anæsthesia will extend over two terms and the course for the Diploma in Radiology will extend over three terms. Further particulars regarding these courses are available from the secretary of the Post-Graduate Committee, 131, Macquarie Street, Sydney. Telephone: B 4606.

Obituary.

OSWALD ROBERT TRUMPY.

WE regret to announce the death of Dr. Oswald Robert Trumpy, which occurred on February 5, 1945, at Warragul, Victoria.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Viwes, Robert Harold, M.B., B.S., 1943 (Univ. Sydney), 154, Croydon Avenue, Croydon Park.

Laycock, John Field, M.B., B.S., 1944 (Univ. Sydney), "Tudor", 31, Cross Street, Concord.

Medical Appointments.

Dr. Lindon Archdall Langley, Medical Officer, Mental Hospital, Ararat, has been appointed an officer of the Public Service of the State of Victoria.

On the nomination of the South Australian Branch of the British Medical Association, the undermentioned have been appointed a panel of medical referees under the provisions of subsection 7 of section 97a of the *Workmen's Compensation Act*, 1932-1944: Sir Constantine Trent Champion de Crespigny, Dr. Kenneth Stuart Hetzel, Dr. Frank Raymond Hone, Dr. Edmund Britten Jones, Dr. Guy Austin Lendon, Dr. Eugene McLaughlin.

Books Received.

"The 1944 Year Book of General Medicine", edited by George F. Dick, M.D., J. Burns Amberson, M.D., S.D., F.R.C.P. (Edinburgh and London), George R. Minot, M.D., S.D., F.R.C.P., William B. Castle, M.D., S.M., William D. Stroud, M.D., George B. Eusterman, M.D.; 1944. Chicago: The Year Book Publishers. 7" × 4¾", pp. 768, with 104 illustrations. Price: $3.00, post paid.

"The Biological Basis of Individuality", by Leo Loeb; 1945. Illinois: Charles C. Thomas. 9¼" × 6¼", pp. 821. Price: $10.50, postpaid.

"A Bibliography of Aviation Medicine Supplement", by Phebe Margaret Hoff, Ebbe Curtis Hoff and John Farquhar Fulton; 1944. Washington: Published by the Committee on Aviation Medicine, Division of Medical Sciences, National Research Council, Acting for the Committee on Medical Research, Office of Scientific Research and Development, Washington, D.C. 10" × 7½", pp. 122. Price: $2.50, postpaid.

Diary for the Month.

FEB. 19.—Victorian Branch, B.M.A.: Hospital Subcommittee.
FEB. 19.—Victorian Branch, B.M.A.: Finance, House and Library Subcommittee.
FEB. 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.
FEB. 20.—Victorian Branch, B.M.A.: Organization Subcommittee.
FEB. 22.—Victorian Branch, B.M.A.: Executive Meeting.
FEB. 23.—Queensland Branch, B.M.A.: Council Meeting.
FEB. 24.—Tasmanian Branch, B.M.A.: Annual Meeting.
FEB. 27.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 28.—Victorian Branch, B.M.A.: Council Meeting.
MAR. 1.—New South Wales Branch, B.M.A.: Special Groups Committee.
MAR. 1.—South Australian Branch, B.M.A.: Council Meeting.
MAR. 2.—Queensland Branch, B.M.A.: Branch Meeting.
MAR. 6.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MAR. 6.—New South Wales Branch, B.M.A.: Organization and Science Committee.
MAR. 7.—Western Australian Branch, B.M.A.: Council Meeting.
MAR. 7.—Victorian Branch, B.M.A.: Branch Meeting.
MAR. 9.—Queensland Branch, B.M.A.: Council Meeting.
MAR. 12.—Federal Council, B.M.A. in Australia: Meeting in Melbourne.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £2 for Australia and £2 5s. abroad *per annum* payable in advance.